SPECIAL PROVISIONS

FOR

CITY OF SAN LUIS OBISPO

Jack House Roof, Widows Walk Repair, and Arbor Replacement

Specification No. 2000075-13.01

NOVEMBER 2024

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

919 Palm Street
San Luis Obispo, CA 93401
(805) 781-7200

Jack House Roof, Widows Walk Repair, and Arbor Replacement

Specification No. 2000075-13.01

Approval Date: November 12, 2024

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NOTICE TO BIDDERS
BID SUBMISSION

Sealed bids will be received by the City of San Luis Obispo at the Public Works Administration Office located at 919 Palm Street, San Luis Obispo, California 93401, until

11:00 a.m. on December 19, 2024

at which time they will be publicly opened and read aloud. Public bid opening may be accessed via Microsoft Teams video conference and conference call. In person attendance will be permitted. Use the following link:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_MjM1OGQzNDctNTMyNi00MGQ4LWI5NGItNTdlOWM5MTQyZThk%40thread.v2/0?context=%7b%22Tid%22%3a%22a78b182d-94e4-4507-a9a9-330dcb148164%22%2c%22Oid%22%3a%2255684c81-fa0a-443f-b6a5-1f55eacc1141%22%7d

or join by phone with this number: (209)645-4165 with Conference ID: 426 108 739#

Submit bid in a sealed envelope plainly marked:

JACK HOUSE ROOF, WIDOWS WALK REPAIR, AND ARBOR REPLACEMENT
SPECIFICATION NO. 2000075-13.01

Any bid received after the time and date specified will not be considered and will be returned to the bidder unopened. Bids received by Fax or Email will not be considered.

By submission of bid you agree to comply with all instruction and requirements in this notice and the contract documents.

All bids must be submitted on the Bid Item List form(s) provided and submitted with all other Bid Forms included in these Special Provisions.

Each bid must be accompanied by either a:

1. certified check
2. cashier's check
3. bidder's bond

made payable to the City of San Luis Obispo for an amount equal to ten percent of the bid amount as a guaranty. Guaranty will be forfeited to the City San Luis Obispo if the bidder, to whom the contract is awarded, fails to enter into the contract.

The City of San Luis Obispo reserves the right to accept or reject any or all bids or waive any informality in a bid.

All bids are to be compared based on the City Engineer's estimate of the quantities of work to be done, as shown on the Bid Item List.

Bids will only be accepted from bidders that are licensed in compliance with the provisions of Chapter 9, Division III of Business and Professions Code.

The award of the contract, if awarded, will be to the lowest responsive bid submitted by a responsible contractor whose bid complies with the requirements prescribed. If the contract is awarded, the contract will be awarded within 60 calendar days after the opening of the bids.

Failure to raise defects in the notice to bidders or bid forms prior to bid opening constitute a waiver of those defects.

BID DOCUMENTS

A copy of the plans and special provisions may be downloaded, free of charge, from the City's website at:

www.slocity.org/government/department-directory/public-works/public-works-bids-proposals

No printed copies are available for purchase at the City office.

Standard Specifications and Engineering Standards referenced in the Special Provisions may be downloaded, free of charge, from the City's website at:

www.slocity.org/government/department-directory/public-works/documents-online/construction-documents

You are responsible to obtain all issued addenda prior to bid opening. Addenda will be available to download at the City's website listed above or at the office of the City Engineer.

Contact the project manager, Sandra Golonka at (805) 781-7239 or the Public Works Department at (805) 781-7200 prior to bid opening to verify the number of addenda issued.

You are responsible to verify your contact information is correct on the plan holders list located on the City's website at:

www.slocity.org/government/department-directory/public-works/public-works-bids-proposals.

PROJECT INFORMATION

In general, the project consists of removing and replacing the existing roof and arbor at the Jack House & Gardens. Repair and replacement as needed of the railing surrounding the Widow's Walk and Porch roof.

The project estimated construction cost and contract time established for the project is as follows:

BASE BID:	$282,000	65 working days
ADDITIVE ALTERNATIVE “A”	$115,000	20 working days

TOTAL PROJECT BID (BASE BID + ADD ALT. “A”): $397,000

Base bid contract tie is established as 65 working days. Award of Additive Alternate “A” will add 20 working days to the contract length.

The fixed liquidated damages amount is established at $500 per day for failure to complete the work within the contract time.

In compliance with section 1773 of the Labor Code, the State of California Department of Industrial Relations has established prevailing hourly wage rates for each type of workman. Current wage rates may be obtained from the Division of Labor at:

https://www.dir.ca.gov/oprl/DPreWageDetermination.htm

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

There will be a MANDATORY walkthrough on December 4, 2024 at 10:00 a.m. Prime contractors wishing to submit a bid proposal are required to attend and sign in at the meeting. Bidders must meet in front of the Jack House & Gardens (536 Marsh Street, San Luis Obispo) followed by a second walkthrough at the San Luis Obispo Corp Yard (25 Prado Road, San Luis Obispo).

QUALIFICATIONS

You must possess a valid Class B Contractor's License at the time of the bid opening.

You and any subcontractors required to pay prevailing wage must be registered with the Department of Industrial Relations pursuant to Section 1725.5 of the Labor Code.

You as the prime contractor or qualified subcontractor utilized by you must have experience constructing projects similar to the work specified for this project. Provide three similar reference projects completed by you or your qualified subcontractor as either the prime or subcontractor. All referenced projects must have been completed within the last five years from this project’s bid opening date.

One of the three reference projects must have been completed under contract with a city, county, state or federal government agency as the prime contractor.

One of the three referenced projects must include woodwork repairs on historical buildings completed by either you as the prime contractor or a qualified subcontractor used for this project.

One of the three referenced projects must include removal of lead-based paint completed by either you as the prime contractor or a qualified subcontractor used for this project.

Failure to provide reference projects as specified in this section and as required on the qualification form is cause to reject a bid as being non-responsive.

The City reserves the right to reject any bid based on non-responsiveness if a bidder fails to provide a bid that complies with all bidding instructions.

The City reserves the right to reject a responsive bid based on the non-responsibility of the bidder if the Director of Public Works or Designee finds, after providing notice and a hearing to the bidder, that the bidder lacks the

1. knowledge
2. experience,
3. or is otherwise not responsible

as defined in Section 3.24 of the San Luis Obispo Municipal Code to complete the project in the best interest of the City.

Rejected bidders may appeal this determination. Appeal must comply with the requirements in this Notice to Bidders.

It is the City of San Luis Obispo's intent to award the contract to the lowest responsive bid submitted by a responsible bidder. If in the bidder's opinion the contract has been or may be improperly awarded, the bidder may protest the contract award.

Protests must be filed no later than five working days after either:

1. bid opening date
2. notification of rejected bid.

Protest must be in writing and received by the project manager located at:

919 Palm Street
San Luis Obispo, CA 93401.

Valid protests must contain the following information:

1. the reasons for the protest
2. any supporting documentation
3. the ruling expected by the City to remedy the protest.

Any protest not containing all required information will be deemed invalid and rejected.

The City will consider additional documentation or other supporting information regarding the protest if submitted in compliance to the specified time limits. Anything submitted after the specified time limit will be rejected and not be considered.

The Director of Public Works or Designee may request additional information to be submitted within three days of the request, unless otherwise specified, and will notify the protester of ruling within ten days of determination.

If the protester is not satisfied with ruling, the protester may appeal the ruling to the City Council in compliance with Chapter 1.20 of the City of San Luis Obispo Municipal Code.

Pursuant to the Public Records Act (Government Code, § 6250, et seq.), the City will make public records available upon request.

AWARD

The lowest bidder will be determined in compliance with Public Contract Code Section 20103.8(c) with the Publicly Disclosed Funding Amount of $397,000 using either:

- TOTAL PROJECT BID, if bid for Base Bid + Add. Alt. “A” is less than $397,000 or
- BASE BID, if Base Bid is less than $397,000 and Base Bid + Add. Alt. “A” is greater than $397,000.

As a condition to executing a contract with the City, two bonds each equal to one hundred percent of the total contract price are required in compliance with Section 3-1.05 of the Standard Specifications.

You may substitute securities for moneys withheld under the contract in compliance with the provisions of the Public Contract Code, Section 10263.

ACCOMMODATION

If any accommodations are needed to participate in the bid process, please contact Allie Genard at (805) 781-7200 or by Telecommunications Device for the Deaf at (805) 781-7107. Requests should be made as early as possible in the bidding process to allow time for accommodation.

BID FORMS

All bid forms must be completed and submitted with your bid. Failure to submit these forms and required bid bond is cause to reject the bid as nonresponsive. Staple all bid forms together.

THE UNDERSIGNED, agrees that they have carefully examined:

1. the location of the proposed work
2. the plans and specifications
3. read the accompanying instructions to bidders

and propose to furnish all:

4. materials
5. labor

to complete all the required work satisfactorily in compliance with

6. plans
7. specifications
8. special provisions

for the prices set forth in the bid item list:

BID ITEM LIST FOR JACK HOUSE ROOF, WIDOWS WALK REPAIR, AND ARBOR REPLACEMENT PROJECT, SPECIFICATION NO. 2000075-13.01

Item No.	SS(1)	Item Description	Unit of Measure	Estimated Quantity	Item Price (in figures)	Total (in figures)
1	15	Removal of Existing East and West Bay Windows Roofs [Sheet A2.01 (typ of 3)]	LS	1	---	
2	99	Install East and West Bay Window Roofs [Sheet A2.01 (typ of 3)]	SQFT	152		
3	99	Clean and Repair Front Porch Metal Tile Roof (Sheet A2.01)	SQFT	245		
4* (S)	99	Remove Lead Based Paint	LS	1	---	
5* (S)	99	Repair Existing Front Porch and Widows Walk Roof Railing including Posts & Finials	LF	34		
6* (S)	99	Remove and Replace Existing Front Porch and Widows Walk Roof Railing including Posts & Finials	LF	14		
7* (S)	99	Reinstall Roof Railing of Front Porch and Widows Walk Roof Railing including Posts & Finials	LF	83		
8	99	Paint Railings and Affected Areas including Posts & Finials	LS	1	---	
9	15	Remove Existing Rear Porch / Bath Addition Roofing and Cap Off Exposed Pipes (DTL 3/A8.01)	LS	1	---	

Item No.	$SS_{(1)}$	Item Description	Unit of Measure	Estimated Quantity	Item Price (in figures)	Total (in figures)
10	99	Install Rear Porch / Bath Addition Roof	SQFT	300		
11	99	Remove Existing Multi-Layered Wood Shingle Roof and Patches	LS	1	---	
12	99	Install Wood Shingle Roofing	SQFT	1,550		
13	99	Install Attic Ventilation at Shingles	LS	1	---	
14	15	Remove Existing Flashing at Chimneys	LS	1	---	
15	99	Install Flashing at Chimneys (DTL 15/A8.01)	SQFT	40		
16	15	Remove Existing Upper Cap Sheet Roof	LS	1	---	
17	99	Install Upper Cap Sheet Roof	SQFT	300		
18	99	Replace Existing Attic Vent Wire Mesh with Louvered Vents at Flat Roof	LS	1	---	
19	99	Detach Existing Chimney Braces at Cap Sheet Roof	LS	1	---	
20	99	Install Chimney Brackets and Pitch Pans at Cap Sheet Roof (DTL 16/A8.01)	LS	1	---	
21 (S)	99	Chimney Brick Repointing	LS	1	---	
22 (S)	99	Masonry Pre-Construction Test Specimens	LS	1	---	
24	15	Remove Existing Metal Chimney Caps (DTL 20/A8.01)	LS	1	---	
25	99	Install Metal Chimney Caps (DTL 20/A8.01)	SQFT	30		
26	99	Haul Off Debris	LS	1	---	
27	99	Construction Fencing	LS	1	---	
28	14	Health and Safety Plan	LS	1	---	
29	7	OSHA Compliance	LS	1		
30	99	Gutter Cleaning and Repair Gaps	LS	1	---	
31	99	Staging Area Restoration	LS	1	---	
32	99	Historical Tree and Planting Protection	LS	1	---	
Bid Alternate: A						
33 (S)	99	Arbor	LS	1	---	
34	73	Concrete and Flagstone Restoration at Arbor	SQFT	64		
				Bid Total (or Base Bid)	**$**	

Item No.	$SS_{(1)}$	Item Description	Unit of Measure	Estimated Quantity	Item Price (in figures)	Total (in figures)
Company Name:						

(1) refers to section in the Standard Specifications with modifications in the Special Provisions, or the section in the Technical Specification (TS) listed in Appendix B, that describe required work.

(S) Specialty items per Section 5-1.13A SUBCONTRACTING, General of the Standard Specifications.

*Bid item is exempt from Section 9-1.06B and 9-1.06C of the Standard Specifications. The unit price will not be adjusted regardless of the final bid item quantity.

LIST OF SUBCONTRACTORS

Pursuant to Section 4100 of the Public Contracts Code and section 2-1.33C of the standard specifications, the Bidder is required to furnish the following information for each Subcontractor performing more than 1/2 percent (0.5%) of the total base bid. Do not list alternative subcontractors for the same work. Subcontracting must not total more than fifty percent (50%) of the submitted bid except as allowed in section 5-1.13 of the standard specifications.

For Streets & Highways projects, subcontractors performing less than ten thousand dollars ($10,000) worth of work need not be mentioned. **Subcontractors required to pay prevailing wage, must be registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 to be listed.**

NOTE: If there are no subcontractors, write "NONE" and submit with bid.

Name Under Which Subcontractor is Licensed	License Number	**DIR Public Works Registration Number**	Address and Phone Number of Office, Mill or Shop	Specific Description of Subcontract	% of Total Base Bid

Attach additional sheets as needed.

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In compliance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder, or any subcontractor to be engaged by the bidder, **has ____, has not** ____ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

NOTE: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In compliance with Public Contract Code Section 10162, the Bidder must complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

_____ Yes _____ No

If the answer is yes, attach a letter explaining the circumstances

PUBLIC CONTRACT CODE SECTION 10232 STATEMENT

In compliance with Public Contract Code Section 10232, you hereby state under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against you within the immediately preceding two-year period because of your failure to comply with an order of a federal court which orders you to comply with an order of the National Labor Relations Board.

LABOR CODE SECTION 1725.5 STATEMENTS

The bidder has delinquent liability to an employee or the state for any assessment of back wages or related damages, interest, fines, or penalties pursuant to any final judgment, order, or determination by a court or any federal, state, or local administrative agency, including a confirmed arbitration award. Any judgment, order, or determination that is under appeal is excluded, provided that the contractor has secured the payment of any amount eventually found due through a bond or other appropriate means.

_____ Yes _____ No

The bidder is currently debarred under Section 1777.1 or under any other federal or state law providing for the debarment of contractors from public works.

_____ Yes _____ No

NOTE: The above Statements and Questionnaire are part of the Bid. Signing this Bid on the signature portion constitute signature of this Statement and Questionnaire. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

NON-COLLUSION DECLARATION

I, _____, declare that

I am _____ of_____,

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that 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 refrained from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of 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; that 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 or sham bid.

Executed on _____, 20_____, in _____

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

_____

(Signature and Title of Declarant)

(SEAL)

Subscribed and sworn to before me
this _____day of _____, 20_____

_____

Notary Public

Company Name:_____

BIDDER ACKNOWLEDGEMENTS

By signing below, the bidder acknowledges and confirms that this bid is based on the information contained in all contract documents, including the notice to bidders, plans, specifications, special provisions, and addendum number(s) _____. **(Note: You are responsible to verify the number of addenda prior to the bid opening.)**

The undersigned further agrees that in case of default in executing the required contract, with necessary bonds, within eight days, (not including Saturdays, Sundays, and legal holidays), after having received a mailed notice that the contract is ready for signature, the proceeds of the check or bond accompanying his bid will become the property of the City of San Luis Obispo.

Licensed in accordance with an act providing for the registration of contractors, License No._____, Expiration Date _____.

The above statement is made under penalty of perjury, and any bid not containing this information "will be considered non-responsive and will be rejected" by the City.

Signature of Bidder _____

_____
(Print Name and Title of Bidder)

DIR– Public Works Registration No: _____

Business Name (DBA): _____

Owner/Legal Name: _____

Indicate One: ☐Sole-proprietor ☐ Partnership ☐Corporation

List Partners/Corporate Officers: _____
Name Title

_____
Name Title

_____
Name Title

Business Address _____

Street Address _____

Mailing Address _____

City, State, Zip Code _____

Phone Number _____

Fax Number _____

Email Address _____

Date _____

QUALIFICATIONS

Failure to furnish complete reference information **ON THIS FORM**, as specified in this project's Notice to Bidders and indicated below, is cause to reject the bid. Additional information may be attached but is not a substitute for this form.

Reference Number 1

Customer Name & Contact Individual	
Telephone & Email	
Project Name (Site Address):	
Is this similar to the project being bid and did this project include roof construction or industrial building? Yes □ No □	Describe the services provided and how this project is similar to that which is being bid:
Was this contract for a public agency? Yes □ No □	Date project completed:

Reference Number 2

Customer Name & Contact Individual	
Telephone & Email	
Project Name (Site Address):	
Is this similar to the project being bid and did this project include woodwork repair on a historical building activity? Yes □ No □	Describe the services provided and how this project is similar to that which is being bid:
Was this contract for a public agency? Yes □ No □	Date project completed:

Reference Number 3

Customer Name & Contact Individual	
Telephone & Email	
Project Name (Site Address):	
Is this similar to the project being bid and did this project include removal of lead-based paint activity? Yes □ No □	Describe the services provided and how this project is similar to that which is being bid:
Was this contract for a public agency? Yes □ No □	Date project completed:

ATTACH BIDDER'S BOND TO ACCOMPANY BID

Know all men by these presents:

That we _____, AS PRINCIPAL, and

_____, AS SURETY, are held and firmly bound unto the City of San Luis Obispo in the sum of:

_____ Dollars (_____) to be paid to said City or its certain attorney, its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the certain bid of the above

bounden _____

to construct _____
(insert name of street and limits to be improved or project)

dated _____ is accepted by the City of San Luis Obispo, and if the above

bounden _____, his heirs, executors, administrators, successors, and assigns shall duly enter into and execute a contract for such construction and shall execute and deliver the two bonds described within ten (10) days (not including Saturdays, Sundays, or legal holidays) after the above bounden,

_____, has received notice by and from the said City of San Luis Obispo that said contract is ready for execution, then this obligation shall become null and void; otherwise, it shall be and remain in full force and virtue.

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

Bidder Principal:

_____

Signature Date
Title:

Surety:

_____

_____

_____

Bidder's signature is not required to be notarized. Surety's signature must be notarized.
Equivalent form may be substituted
(Rev. 6-30-14)

SPECIAL PROVISIONS

ORGANIZATION

Special provisions are under headings that correspond with the main section heading of the Standard Specifications. Each special provision begins with a revision clause that describes or introduces a revision to the Standard Specifications. Any paragraph added or deleted by a revision clause does not change the paragraph number of the Standard Specifications for any other reference to a paragraph of the Standard Specifications.

DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to Section 1-1.01 GENERAL:

The work must be done in compliance with the City of San Luis Obispo, Department of Public Works:

1. Jack House Roof, Widows Walk Repair and Arbor Replacement, Specification No. 2000075-13.01 Special Provisions
2. City of San Luis Obispo Standard Specifications and Engineering Standards – 2020 edition
3. State of California, Department of Transportation Standard Specifications and Standard Plans – 2015 edition

In case of conflict between documents, governing ranking must comply with section 5-1.02 of the City of San Luis Obispo's Standard Specifications. All work must conform to these Special Provisions and appendices, project plans, and the most current Building Codes. In the event of a conflict, the more stringent requirement shall apply.

Failure to comply with the provisions of these sections is a material breach of contract:

1. Sections 5 through 8 of the Standard Specifications
2. Section 12 through 15 of the Standard Specifications
3. Section 77-1 of the Standard Specifications
4. Section 81 of the Standard Specifications
5. authorized working hours
6. OSHA compliance

3 CONTRACT AWARD AND EXECUTION

Add Section 3-1.18B CONTRACT EXECUTION, Building Permit:

3-1.18B Building Permit

The contractor must obtain a no-fee building permit from the Community Development Department. All requirements of the building permit shall be applied to the project. The contractor is responsible for coordinating inspection with the building division for the project. Request for inspection must be scheduled 72 hours in advance of the required inspection.

Prior to project construction, the Contractor must completely fill out the Construction & Demolition Recycling Plan and Disposal Report, found on the City's Construction & Demolition Recycling Program website to obtain a Building Permit. The Construction & Demolition Recycling Plan and Disposal Report must be turned in to Utilities Department located at 879 Morro Street, San Luis Obispo, CA 93401 for review and approval.

Upon completion of the project, the Contractor must submit waste receipts and final permit, see page 2 of the Construction & Demolition Recycling Plan and Disposal Report, to 879 Morro for sign off.

4 SCOPE OF WORK

Add to Section 4-1.03 WORK DESCRIPTION:

Comply with the provisions of Sections 3, 4, 5,6,7,8,9,14,15,16,73, and 99 for general, material, construction, and payment specifics. Refer to these Special Provisions including Appendix B Supplemental Technical Specifications for modifications to the above Sections.

5 CONTROL OF WORK

Add to Section 5-1.01 GENERAL:

Work hours are restricted to 7:00 a.m. to 4:00 p.m Monday through Friday with noise restricted quiet hours from 11:00 a.m. to 1:00 p.m. Quiet hours prohibits use of pneumatic equipment, sawcutting or jackhammer use, but work shall otherwise continue.

Contractors are not permitted to access the interior of the house. All work must be completed from the exterior of the property.

All work involving the removal of lead-based paint from historical railings must be conducted in accordance with applicable OSHA, EPA, and local regulations regarding lead exposure, hazardous waste handling, environmental protection and conform to Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing linked: Guidelines for the Evaluation and Controls of Lead Based Paint Hazards in Housing. Compliance with these guidelines is mandatory for lead handling.

The approved method for paint removal is Peel Away Stripper or an approved equal per Technical Specification 099110.

Prior to removal and repair of the railing, the Contractor shall establish a work zone and secure the area to prevent unauthorized personnel access. Ensure all workers involved in the lead paint stripping process are trained in lead-safe work practices. Set up appropriate containment measures to prevent the release of lead dust and debris into the surrounding environment.

The following step-by-step procedure shall be followed to ensure safe removal and restoration of the historical railing while containing hazardous lead paint waste. Cut the railing from its posts in large sections as needed for replacement. Utilize a vacuum system capable of collecting particles during cutting operations to capture all paint chips and debris.

When removal of the railing is required encase the railing in heavy-duty plastic sheeting (6 mil or greater), ensuring that all sides are sealed securely with industrial-grade tape to prevent lead dust and debris from escaping while moving to the ground.

Transport the railing to an onsite designated containment area (a tent or other fully enclosed structure) for further restoration. Conduct all restoration activities on the project site and within the containment area under controlled conditions. Workers shall wear appropriate respiratory protection (minimum P100 respirators) and disposable protective clothing. Hand tools and HEPA-filtered vacuums must be used continuously to prevent the release of airborne lead dust. No power tools without dust collection or vacuum capabilities are allowed.

All lead paint chips, wood fragments, and related debris must be treated as hazardous waste. Collect waste immediately after removal and transfer it into 55-gallon steel drums. Drums shall be properly sealed, labeled in accordance with hazardous waste regulations, and stored in a designated area until disposal by a licensed hazardous waste contractor. Dust monitoring shall be conducted continuously during the project to ensure compliance with allowable lead exposure limits. The contractor shall document all work activities, including waste disposal records, and provide a final report to the Project Manager upon completion of the work.

All personnel involved must be trained in lead abatement safety and adhere to proper decontamination procedures.

6 CONTROL OF MATERIALS

Add Section 6-1.06 CONTRACTOR FURNISHED MATERIALS

The Contractor shall provide, at no additional cost to the City, all construction power used at the project site.

The Contractor shall make arrangements and provide for adequate portable toilet facilities at the site. The Contractor shall maintain sanitary facilities until completion of work at which time the facilities will be removed from the site and premises disinfected.

The Contractor shall protect all materials and equipment stored onsite from any damage or deterioration until it is ready for installation. The City shall not be held liable for any damage to the material that may occur on site.

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Add to Section 7-1.03B PUBLIC CONVENIENCE, Traffic Control Plan

Work hours are Monday through Friday between 7:00 a.m. to 4:00 p.m.

Provide traffic control plan and traffic control application at or before the preconstruction meeting. Traffic control plan must be drawn to scale. Traffic control application may be obtained on the City's website:

www.slocity.org/government/department-directory/public-works/documents-online/construction-documents

Upon approval of the traffic control plan, the City will issue a no-fee Encroachment Permit. Permittee is responsible to comply with all conditions of the traffic control plan. Complete work using due diligence to restore free flowing of traffic.

Add to Section 7-1.04 PUBLIC SAFETY:

Contractor shall provide a rigid 6-ft high (minimum) chain link or other rigid work site fence surrounding the work site (including any staging and storage areas).

Contractor shall leave the work site clean and free from hazards at the end of each day and on weekends.

Construction equipment will be allowed to be kept on-site after hours and over weekends provided it is fully contained within the fenced and secured work site.

Contract to submit staging plan for approval. The plan must identify the path to construction work that will minimize site disturbance. Where trimming of existing vegetation is required during construction, shall be approved and monitored by the City arborist. Existing improvements damaged during construction must be restored at the Contractor's expense.

8 PROSECUTION AND PROGRESS

Replace the 1st paragraph in Section 8-1.02A SCHEDULE, General with:

Provide a Level 1 schedule for this work.

Add to Section 8-1.1.03 PRECONSTRUCTION CONFERENCE:

14. Schedule of Values for all lump sum bid items.

Add to Section 8-1.04B START OF JOB SITE ACTIVITIES, Standard Start:

After award and execution of the contract, the Contractor shall place the order for long lead time roof materials after submittals are reviewed and approved. The contractor shall

provide the City with a tentative delivery date for all roofing material and subsequently, the City will issue the notice to proceed with a start date of 15 working days prior to delivery. Within 5 days of receiving the notice to proceed, the Contractor must provide a work schedule. Work schedule must indicate the critical path based on the tentative delivery dates of the roofing material. Schedule must show work continuing to completion without interruption.

9 PAYMENT

Add to Section 9-1.01 GENERAL:

Work as specified in these specifications and as shown on the Plans for which no separate payment is provided for in the Bid Item List will be considered a subsidiary obligation of the Contractor and the cost thereof shall be included in the applicable Contract prices for the item to which the work applies.

The following additional Bid Item descriptions are included for those atypical bid items not fully covered in the Standard Specifications:

BID ITEM 3 – CLEAN AND REPAIR FRONT PORCH METAL TILE ROOF : Payment for this lump sum bid item shall be made on a percentage complete basis, based lump sum amount of the bid item. Work shall include inspection for proper attachment, weatherproofing, integrity, and useful life conditions. Seal joint, surface corrosion to be cleaned, treated with rust converting solution, coated with corrosion inhibitive primer, and repainted with color to match. All open joints shall be sealed with a compatible paintable sealant after cleaning sheet metal. This bid item shall include all necessary labor, tools, materials, and equipment required to do all the work.

BID ITEM 4 – REMOVE LEAD-BASED PAINT: Payment for this lump sum bid item shall be made on a percentage complete basis, based lump sum amount of the bid item. All paint is to be stripped, using a Peel Away paint stripper or approved equal and must conform with Technical Standard 09910 (Appendix B), and the sequence of work must be approved prior to the start of work by the City Engineer. This bid item shall include all necessary labor, tools, materials, and equipment required to do all the work.

BID ITEM 5 – REPAIR EXISTING ROOF RAILING OF FRONT PROCH AND WIDOWS WALK ROOF RAILING INCLUDING POSTS & FINIALS: Measurement and payment for repairing existing railing will be paid by linear feet based on the bid item. Repair elements shall use epoxy wood patching and is limited to 1 cubic inch of volume per patch following the manufacturer's minimum thickness edge, All replacement wood must be naturally weather and pest-resistant. This bid item shall include all necessary labor, tools, materials, and equipment required to do all the work.

BID ITEM 6 – REPLACE EXISTING ROOF RAILING OF FRONT PROCH AND WIDOWS WALK ROOF RAILING INCLUDING POSTS & FINIALS: Measurement and payment for repairing existing railing will be paid by linear feet based on the bid item. Prepare a

summary list of historic rail elements that will need to be replaced in-kind, due to deterioration, and submit to the City Engineer all replacement elements. All replacement elements shall be fabricated using the shape and profile of the remaining elements, that are to be reinstalled as templates. Dutchman repairs should be used before the full replacement of the element., All replacement wood must be naturally weather and pest-resistant. This bid item shall include all necessary labor, tools, materials, and equipment required to do all the work.

BID ITEM 26 – ARBOR: Payment for this lump sum bid item shall be made on a percentage complete basis, based lump sum amount of the bid item. Arbor/Trellis to be reconstructed based on existing post-base locations. Existing salvage elements located and the City Corporation Yard are to be used as templates for recreating the replacement parts. This bid item shall include all necessary labor, tools, materials, and equipment required to do all the work. Appendix C: Structural Calculations.

BID ITEM 32 – STAGING AREA RESTORATION: Payment for this lump sum bid item shall be made on a percent complete basis, based on lump sum amount for this item includes full compensation for a complete repair or replace of damaged sod and plants, including but not limited to other materials within areas used for staging. This bid item shall include all the necessary labor, tools, materials, and equipment required to do all the work.

Add to Section 9-1.02A MEASUREMENT, General:

Contractor must submit a Schedule of Values for all lump sum bid items of work at the Preconstruction Meeting in compliance with Section 9-1.16B. Payment application pay items shall match the bid item sheet and subcategories to a pay item will not be allowed. Payment for Lump Sum items will be based on the percentage of acceptable work and the schedule of values for that item.

Add to Section 9-1.03 PAYMENT SCOPE:

Any item of work that does not have separate bid item is considered included in the project cost of work and no additional compensation will be paid.

DIVISION II GENERAL CONSTRUCTION

14 ENVIRONMENTAL STEWARDSHIP

Add to Section 14-11.01 HAZARDOUS WASTE AND CONTAMINATION, GENERAL:

The City has completed lead and asbestos testing for the Jack House structure. Please refer to Appendix D for detailed testing results.

The contractor must adhere to all applicable safety and health regulations, including those specified in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards

in Housing linked: Guidelines for the Evaluation and Controls of Lead Based Paint Hazards in Housing. Compliance with these guidelines is mandatory for lead handling.

Prior to commencing any work, the contractor must submit a Lead Mitigation Plan for City approval. Work may not begin until the plan is approved. Refence Appendix E: Safety Manager Review and Recommendations.

15 EXISTING FACILITIES

Add to Section 15-2.01 HISTORICAL BUILDING PROTECTION:

A qualified contractor with demonstrated experience working with historical structures shall be used for all work on the Widows Walk railing and porch railing.
All historical planting within the property limits must be protected (Appendix F) and handled with care. All trimming or securing of these historical plantings must be approved and completed under the supervision of the City arborist. The Jack House Gardens story map provides an inventory of plantings: Jack House Gardens (arcgis.com).

16 TEMPORARY FACILITIES

The contractor shall provide and maintain service of portable restroom for the entire duration of construction. Portable restroom must be locked at end of each day.

DIVISION XII BUILDING CONSTRUCTION

99 BUILDING CONSTRUCTION

Add SECTION 99-1.01 GENERAL:

See APPENDIX B: Technical Specifications
See APPENDIX E: Safety Manager Review and Recommendations

DIVISION XIII APPENDICES

Add SECTION 100 APPENDICES:

Refer to APPENDIX A: Form of Agreement
Refer to APPENDIX B: Technical Specifications
Refer to APPENDIX C: Arbor Structural Calculations
Refer to APPENDIX D: Lead Report and Asbestos
Refer to APPENDIX E: Safety Manager Review and Recommendations
Refer to APPENDIX F: Historical Planting Map
Refer to APPENDIX G: Arbor Photos

APPENDIX A - FORM OF AGREEMENT

THIS AGREEMENT, made on _____, by and between the City of San Luis Obispo, a municipal corporation and charter city, San Luis Obispo County, California (hereinafter called the Owner) and COMPANY NAME (hereinafter called the Contractor).

WITNESSETH:

That the Owner and the Contractor for the consideration stated herein agree as follows:

ARTICLE 1, SCOPE OF WORK: The Contractor shall perform everything required to be performed, shall provide and furnish all of the labor, materials, necessary tools, expendable equipment, and all utility and transportation services required to complete all the work of construction of

NAME OF PROJECT, SPEC NO.

in strict compliance with the plans and specifications therefor, including any and all Addenda, adopted by the Owner, in strict compliance with the Contract Documents hereinafter enumerated.

It is agreed that said labor, materials, tools, equipment, and services shall be furnished and said work performed and completed under the direction and supervision and subject to the approval of the Owner or its authorized representatives.

ARTICLE II, CONTRACT PRICE: The Owner shall pay the Contractor as full consideration for the faithful performance of this Contract, subject to any additions or deductions as provided in the Contract Documents, the contract prices as follows:

Item No.	Item	Unit of Measure	Estimated Quantity	Item Price (in figures)	Total (in figures)
1.					
2.					
3.					

BID TOTAL: $ .00

Payments are to be made to the Contractor in compliance with and subject to the provisions embodied in the documents made a part of this Contract.

Should any dispute arise respecting the true value of any work omitted, or of any extra work which the Contractor may be required to do, or respecting the size of any payment to the Contractor, during the performance of this Contract, said dispute shall be decided by the Owner and its decision shall be final, and conclusive.

ARTICLE III, COMPONENT PARTS OF THIS CONTRACT: The Contract consists of the following documents, all of which are as fully a part thereof as if herein set out in full, and if not attached, as if hereto attached:

1. Notice to Bidders and Information for Bidders
2. Standard Specifications and Engineering Standards
3. Special Provisions, any Addenda, Plans and Contract Change Orders
4. Caltrans Standard Specifications and Standard Plans 2015
5. Accepted Bid and Bid Bond
6. List of Subcontractors
7. Public Contract Code Sections 10285.1 Statement
8. Public Contract Code Section 10162 Questionnaire
9. Public Contract Code Section 10232 Statement
10. Labor Code Section 1725.5 Statements
11. Bidder Acknowledgements
12. Qualifications
13. Non-collusion Declaration
14. Agreement and Bonds
15. Insurance Requirements and Forms

ARTICLE IV INDEMNIFICATION: The Contractor shall indemnify, defend with legal counsel approved by City, and hold harmless City, its officers, officials, employees and volunteers from and against all liability, loss, damage, expense, cost (including without limitation reasonable legal counsel fees, expert fees and all other costs and fees of litigation) of every nature arising out of or in connection with the Contractor's negligence, recklessness or willful misconduct in the performance of work hereunder or its failure to comply with any of its obligations contained in this Agreement, except such loss or damage which is caused by the sole or active negligence or willful misconduct of the City. Should conflict of interest principles preclude a single legal counsel from representing both the City and the Contractor, or should the City otherwise find the Contractor's legal counsel unacceptable, then the Contractor shall reimburse the City its costs of defense, including without limitation reasonable legal counsel fees, expert fees and all other costs and fees of litigation. The Contractor shall promptly pay any final judgment rendered against the City (and its officers, officials, employees and volunteers) with respect to claims determined by a trier of fact to have been the result of the Contractor's negligent, reckless or wrongful performance. It is expressly understood and agreed that the foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the State of California and will survive termination of this Agreement.

The Contractor obligations under this section apply regardless of whether such claim, charge, damage, demand, action, proceeding, loss, stop notice, cost, expense, judgment, civil fine or penalty, or liability was caused in part or contributed to by an Indemnitee. However, without affecting the rights of the City under any provision of this agreement, the Contractor shall not be required to indemnify and hold harmless the City for liability attributable to the active negligence of City, provided such active negligence is determined by agreement between the parties or by the findings of a court of competent jurisdiction. In

instances where the City is shown to have been actively negligent and where the City's active negligence accounts for only a percentage of the liability involved, the obligation of the Contractor will be for that entire portion or percentage of liability not attributable to the active negligence of the City.

ARTICLE V. 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 bid of said Contractor, then this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said bid conflicting herewith.

IN WITNESS WHEREOF, the parties to these presents have hereunto set their hands this year and date first above written.

CITY OF SAN LUIS OBISPO
A Municipal Corporation

_____
Whitney McDonald, City Manager

APPROVED AS TO FORM

_____
J. Christine Dietrick
City Attorney

CONTRACTOR:

Name of Company

By:_____
Name of CAO/President
Its: CAO/PRESIDENT

(2nd signature required if Corporation):

By:_____
Name of Corporate Officer

Its: _____

APPENDIX B – SUPPLEMENTAL TECHNICAL SPECIFICATION

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END OF TABLE OF CONTENTS

SECTION 013591 - HISTORIC TREATMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes general protection and treatment procedures for designated historic spaces, areas, and surfaces in Project.

1.3 DEFINITIONS

A. Consolidate: To strengthen loose or deteriorated materials in place.

B. Design Reference Sample: A sample that represents the Architect's pre-bid selection of work to be matched; it may be existing work or work specially produced for the Project.

C. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

D. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance that are important to the successful rehabilitation as determined by Architect. Designated historic elements are indicated on Drawings.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.

H. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

I. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

J. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

K. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

L. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

M. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.

N. Retain: To keep existing items that are not to be removed or dismantled.

O. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.

P. Salvage: To protect removed or dismantled items and store in preparation for reuse.

Q. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.

R. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 COORDINATION

A. Historic Treatment Subschedule: A construction schedule coordinating the sequencing and scheduling of historic treatment work for entire Project, including each activity to be performed in historic spaces, areas, and rooms, and on historic surfaces; and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for historic treatment work.

1. Schedule construction operations in sequence required to obtain best historic treatment results.
2. Coordinate sequence of historic treatment work activities to accommodate the following:

    a. Owner's continuing occupancy of portions of existing building.
    b. Owner's partial occupancy of completed Work.
    c. Other known work in progress.
    d. Tests and inspections.

3. Detail sequence of historic treatment work, with start and end dates.
4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
5. Use of stairs.
6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.

B. Public Circulation: Coordinate historic treatment work with public circulation patterns at Project site. Some work is near public circulation patterns. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

1.5 PROJECT MEETINGS FOR HISTORIC TREATMENT

A. Preliminary Historic Treatment Conference: Before starting historic treatment work, Architect will conduct a conference at Project site.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor, historic treatment specialists, and installers whose work interfaces with or affects historic treatment shall be represented at the meeting.
2. Agenda: Discuss items of significance that could affect progress of historic treatment work, including review of the following:

    a. Historic Treatment Subschedule: Discuss and finalize; verify availability of materials, historic treatment specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Fire-prevention plan.
    c. Governing regulations.
    d. Areas where existing construction is to remain and the required protection.
    e. Hauling routes.
    f. Sequence of historic treatment work operations.
    g. Storage, protection, and accounting for salvaged and specially fabricated items.
    h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
    i. Qualifications of personnel assigned to historic treatment work and assigned duties.
    j. Requirements for extent and quality of work, tolerances, and required clearances.
    k. Methods and procedures related to historic treatments, including product manufacturers' written instructions and precautions regarding historic treatment procedures and their effects on materials, components, and vegetation.

l. Embedded work such as flashings, special details, collection of wastes, protection of occupants and the public, and condition of other construction that affect the Work or will affect the work.

3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

B. Coordination Meetings: Conduct coordination audio or video conference meetings specifically for historic treatment work at bi-weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor, each historic treatment specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of historic treatment work activities shall be represented at these meetings. All participants at conference shall be familiar with Project and authorized to conclude matters relating to historic treatment work.
2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of historic treatment work. Include topics for discussion as appropriate to status of Project.

a. Historic Treatment Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
b. Schedule Updating: Revise Contractor's Historic Treatment Subschedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each entity present, including review items listed in the "Preliminary Historic Treatment Conference" Paragraph above and the following:

1) Interface requirements of historic treatment work with other Project Work.
2) Status of submittals for historic treatment work.
3) Access to historic treatment work.
4) Effectiveness of fire-prevention plan.
5) Quality and work standards of historic treatment work.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1. Carefully dismantle and salvage each item or object and protect it from damage, then promptly deliver it to Owner where directed.

1.7 INFORMATIONAL SUBMITTALS

A. Historic Treatment Subschedule:

1. Submit historic treatment subschedule within fourteen (14) calendar days of date established for commencement of historic treatment work.

B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's historic treatment operations.

C. Historic Treatment Program: Submit twenty-one (21) calendar days before work begins.

D. Fire-Prevention Plan: Submit twenty-one (21) calendar days before work begins.

1.8 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: An experienced firm regularly engaged in historic treatments similar in nature, materials, design, and extent to this work as specified in each section and that has completed a minimum of five (5) recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this work.

1. Field Supervisor Qualifications: Full-time supervisors experienced in historic treatment work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on Project site when historic treatment work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.

a. Construct new mockups of required work whenever a supervisor is replaced.

B. Historic Treatment Program: Prepare a written plan for historic treatment for whole Project, including each phase or process and protection of surrounding materials during operations. Describe in detail the materials, methods, and equipment to be used for each phase of work. Show compliance with indicated methods and procedures specified in

this and other Sections. Coordinate this whole-Project historic treatment program with specific requirements of programs required in other historic treatment Sections.

1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-prevention devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire watch personnel's training, duties, and authority to enforce fire safety.

D. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.9 STORAGE AND HANDLING OF HISTORIC MATERIALS

A. Salvaged Historic Materials:

1. Clean loose dirt and debris from salvaged historic items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site designated by Owner.
5. Protect items from damage during transport and storage.

B. Historic Materials for Reinstallation:

1. Repair and clean historic items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make item functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

D. Storage: Catalog and store historic items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

E. Storage Space:

1. Owner will arrange for limited on-site location(s) for free storage of historic material. This storage space does not include security nor climate control for stored material.
2. Arrange for off-site locations for storage and protection of historic material that cannot be stored and protected on-site.

1.10 FIELD CONDITIONS

A. Size Limitations in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches (300 mm) or more.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION, GENERAL

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from historic treatment procedures.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where historic treatment work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during historic treatment work.
5. Contain dust and debris generated by historic treatment work, and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.

7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.

B. Temporary Protection of Historic Materials:

1. Protect existing historic materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program and approved by Architect.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:

1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by historic treatment work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for historic treatment work.
3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as stone or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from historic treatment work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of work in an area, install roofing protection as necessary to protect roofing that is to remain.

3.2 PROTECTION FROM FIRE

A. General: Follow fire-prevention plan and the following:
1. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

a. If combustible material cannot be removed, provide fire blankets to cover such materials.

2. Prohibit smoking by all persons within Project work and staging areas.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Owner's approval for operations involving use of open-flame or welding or other high-heat equipment. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
3. Do not perform work with heat-generating equipment inside building.
4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:

a. Train each fire watch in the proper operation of fire-control equipment and alarms.
b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work at Project site to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

C. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.

1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is completed.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proved to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in historic treatment program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL HISTORIC TREATMENT

A. Have historic treatment work performed only by qualified historic treatment specialists.

B. Ensure that supervisory personnel are present when historic treatment work begins and during its progress.

C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs. Comply with requirements in Section 024291 – Removal and Salvage of Historic Building Materials.

D. Perform surveys of Project Site as the Work progresses to detect hazards resulting from historic treatment procedures.

E. Follow the procedures in subparagraphs below and procedures approved in historic treatment program unless otherwise indicated:

1. Retain as much existing material as possible; repair and consolidate rather than replace.

2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
3. Use reversible processes wherever possible.
4. Use historically accurate repair and replacement materials and techniques unless otherwise indicated.

F. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Architect.

G. Where missing features are indicated to be repaired or replaced, provide work with appearance based on accurate duplications rather than on conjecture, subject to approval of Architect.

H. Where work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

I. Identify new and replacement materials and features with permanent marks hidden in the completed Work to distinguish them from original materials. Record a legend of identification marks and the locations of the items on record Drawings.

END OF SECTION 013591

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Items indicated to be removed and salvaged remain City's property. Remove, clean, and rehabilitate identified items per drawings for reinstallation.

B. Comply with EPA regulations and hauling and disposal regulations of authorities having jurisdiction.

C. It is not expected that hazardous materials will be encountered in the Work. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify City. City will remove hazardous materials under a separate contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

A. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain or construction being demolished.

B. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.

C. Protect walls, ceilings, floors, and other existing finish work that are to remain.

D. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.

E. Promptly remove demolished materials from City's property and legally dispose of them. Do not burn demolished materials.

END OF SECTION 024119

SECTION 024290 - PROTECTION OF HISTORIC CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes the following Work. Refer to the Drawings for specific locations of the following Work:
   1. Photographic, written, and/or drawn documentation of historic materials and finishes to be protected.
   2. Protection of all historic rooms, materials, and finishes scheduled to remain in place during demolition and/or construction.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 024291 - Removal and Salvage of Historic Building Materials
   2. Section 061000 - Rough Carpentry
   3. Section 064012 - Historic Wood Repair
   4. Section 064013 - Exterior Architectural Woodwork
   5. Section 064015 - Replacing Deteriorated Woodwork
   6. Section 076100 - Sheet Metal Roofing
   7. Section 076200 - Sheet Metal Flashing and Trim

1.3 DEFINITIONS

A. Historic Fabric: Architectural materials and finishes, constructed during the Period of Significance. Most, but not all, historic fabric is identified on the Drawings. It is the intent of this Section and this Project to maintain and restore as much historic fabric as possible.

B. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's Representative's property. Where indicated, document existing materials and items prior to removal, for use in replacing existing with new to match.

C. Remove and Salvage: Remove and salvage element as indicated for replication or for Owner's Representative's use. Salvage includes required protection, cataloging, documentation, and tracking, as required.

D. Remove, Salvage and Reinstall: Remove items indicated; store and protect against damage; restore and alter as indicated for reuse; and reinstall as indicated. Salvage includes required protection, cataloging, documentation, and tracking.

E. Catalog and Documentation: Identification system including physically marking item, photography, written and/or drawn documentation which adequately describe an element or assembly for reinstallation, restoration and/or replication purposes.

F. Retain and Protect in Place: Retain the identified materials and assemblies in place during construction, and protect such materials and assemblies against damage and deterioration throughout construction. Protection requirements include the installation of physical barriers to prevent damage from construction activities. Barrier materials are to be installed without attachment directly to the materials and assemblies requiring protection.

1.4 MATERIALS OWNERSHIP

A. Materials or items which are discovered during the course of selective salvage, demolition and protection, which are not architectural or structural items and which are determined by the Owner's Representative to be historic artifacts, shall be turned over to the Owner's Representative.

1.5 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.

B. Proposed noise, dust-control and waterproofing measures.

C. Schedule of Selective Protection activities indicating the following:
   1. Detailed sequence of selective salvage, demolition, and removal work, with starting and ending dates for each activity.
   2. Detailed sequence of protection activities.
   3. Coordination for interruption, shutoff, capping, and continuation of utility services.
   4. Use of interior stairs and requirements for interior and exterior access.

D. Selective Protection Program: Submit for review a detailed program indicating proposed operations for selective protection work to Owner's Representative for review and approval prior to start of work. Include the following:
   1. Site:
      a. Method of protecting landscape and plantings during demolition and construction activities.
   2. Building Exterior:
      a. Method of protecting building exterior from damage during demolition and construction activities.

3. Building system components, including sprinklers, mechanical, plumbing and electrical equipment, and light fixtures (interior path to work area):
    a. Method of protecting each system component from damage during demolition and construction activities.
4. Woodwork and Trim, Wood Doors and Windows:
    a. Method of protecting woodwork and trim, wood doors and windows remaining on site during demolition and construction activities.
5. Wood Stairs (interior path to work area):
    a. Method of protecting wood stairs and railings during demolition and construction activities.
6. Metal Roofing:
    a. Method of protecting existing roofing from damage during demolition and construction activities
7. Wood Flooring (interior path to work area):
    a. Method of protecting wood floors remaining on site during demolition and construction activities.

E. Photographs of Existing Conditions: Prior to commencement of selective protection work, submit photographs of existing damage on surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to selective protection operations.

F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.6 QUALITY CONTROL

A. Restoration Specialist: Selective protection work shall be performed by experienced restoration firms and individuals with a minimum of 5 comparable historic restoration projects over the past 5 years. Firms and individuals performing work of this section shall be skilled with specific restoration and reinstallation processes and operations indicated. Includes selective documentation and protection of the following elements:
1.

B. Field-Constructed Mockups: Prior to start of selective protection work, prepare the following mock ups on the building where indicated on the drawings or where directed in the field by the Owner's Representative. Prepare mock-ups using same materials and methods proposed for the Work, and under same weather conditions to be expected during time of the Work. Obtain Owner's Representative's acceptance of qualities before proceeding with the Work.
1. Temporary Protection: Demonstrate installation of temporary protection at the following:
    a. Typical room which will remain generally off limits
    b. Floors.

c. Walls, including baseboard and wainscot.
d. Window openings.
e. Ceilings.
f. Stairs.
g. Demonstrate installation of temporary protection at Contractor's Path of Travel through building.

1.7 PROJECT CONDITIONS

A. HISTORIC BUILDING - Required Care in Selective protection operations.
1. The Work seeks to preserve and restore an historic building; and to protect, salvage and reuse selected building materials and items;
2. Building materials and items shall be considered fragile and must be protected and handled with great care. Historic materials damaged during selective salvage and demolition operations may not be available for replacement; to remedy such damage repair and restoration shall be required. Protection of existing materials and items is of great importance.

B. Protection: Construct temporary barricades and other forms of protection to fully protect existing building interior and all existing materials and items to remain. See section 3.4 for additional requirements.

PART 2 - PRODUCTS

2.1 PROTECTION AND SALVAGE MATERIALS

A. Padding: Non-moisture retentive material for padding and separation of stored materials.
1. Ethafoam, or equal.

B. Hard Barriers
1. Fire-retardant treated lumber and plywood. Do not use salvaged or other materials which are infested with decay fungi or similar organisms.
2. Fiberboard underlayment.

C. Miscellaneous
1. Polyethylene sheeting, corrugated cardboard, kraft paper, and clean quilted pads.
2. Temporary attachment devices, including non-marring tape and removable, non-staining anchors.
3. Sound and thermal insulation materials.
4. Warning signs and labels identifying historic areas, materials, and items to be protected-in-place. Signage and labels to read, at a minimum, "Historic - Retain and Protect," in multiple languages.

D. Insect Infestation

1. Provide non-toxic chemical treatment for exterior woodwork and other materials, which are found to be insect-infested.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Maintain existing utilities indicated to remain in service and protect them against damage during selective salvage, demolition, and protection operations.

B. Verify that utilities have been disconnected and capped as needed in areas of work.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective salvage, demolition, and protection required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Owner's Representative.

E. Perform surveys as the Work progresses to detect hazards resulting from selective salvage, demolition, and protection activities.

F. Photo documentation shall be through the use of a camera with an optically ground lens (no plastic lenses.) Film shall be 35 mm, either 100 ASA or 200 ASA film speed or digital media at not less than 6 megapixel resolution as TIF files or as high resolution JPG files saved on a DVD, unless otherwise approved. Test shots shall be provided to determine to the Owner's Representative that photography and methods to accomplish recordation are acceptable to the Owner.

3.2 PREPARATION

A. Conduct selective protection operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, alleys, driveways, walks, or other adjacent occupied or used facilities without permission from Owner's Representative and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

B. Conduct selective protection operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective protection area.
   1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
   2. Protect existing site improvements, appurtenances, and landscaping to remain.

3. Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.
4. Protect attic spaces, walls, ceilings, floors, and other existing finished work that are to remain and are exposed during selective protection operations.
5. Cover and protect furniture, furnishings, and equipment that have not been removed.

3.3 PROTECTION, SALVAGE AND REMOVAL

A. Protection:
1. Construct temporary protection at existing elements indicated to remain, to prevent damage to or marring of materials and items. Protection shall be of required size and thickness to withstand impact from falling debris, rolling equipment and objects; residue and droppings from all construction related activities.
   a. Protect Contractor's Path of Travel through the building for the duration of the Project. Delineation of Contractor's Path of Travel to be coordinated with Owner's Representative.
2. Where indicated and where required to prevent damage, materials and items to be protected in place shall be enclosed in protective boxes or coverings. Protective materials shall not be anchored directly to the item being protected. Prevent direct contact between protective assemblies and existing elements or materials by use of spacers, corrugated cardboard, quilted pads, kraft paper, non-moisture retentive padding, or other adequate means.
3. Construct temporary dust proof barricades where indicated and required to separate historically sensitive areas, materials, and items from extensive dirt or dust producing operations. Historically sensitive areas include:
   a. The building interior along Contractor’s Path of Travel.
   b. Exterior building walls adjacent to work area.
   c. Porches, stairs, and other exterior elements as indicated on the Drawings.
4. Provide temporary weather protection during interval between selective demolition and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
5. Provide temporary shoring and scaffolding, which does not damage historic fabric.
6. Monitor areas indicated to be protected by prohibiting passage and construction activities, except for selected work required therein.
7. Remove protections as required to perform selected Work, and reinstall following completion of selected work.
   a. At completion of construction, completely remove protection. Restore and clean to match equivalent, restored existing materials and items if existing materials and items have been affected by protective coverings.

B. Removal and Demolition: Demolish and remove existing construction as indicated only after protection, cataloging, documentation and salvage operations have been completed. Use methods required to complete Work within limitations of governing regulations and as follows:
   1. Proceed with selective salvage, demolition, and protection systematically.
   2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
   3. Return elements of construction and surfaces to remain to condition existing before start of selective salvage, demolition, and protection operations.

END OF SECTION 024290

SECTION 024291 - REMOVAL AND SALVAGE OF HISTORIC CONSTRUCTION MATERIALS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Removal and salvage of identified historic items and materials, and removal of resulting rubbish and debris. Materials to be salvaged or recycled shall be stored daily in areas and manner specified by the Owner. In the interest of conservation, salvage and recycling shall be pursued to the maximum extent possible.

1.2 SUBMITTALS

A. Work Plan: Submit procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged or recycled, dust control, protection of property which is to remain undisturbed, and coordination with other work in progress. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

1.3 QUALITY ASSURANCE

A. Qualifications: Provide qualified workers trained and experienced in whole-building recycling, including removal and salvage of historic materials and submit documentation of 5 consecutive years of work of this type. A list of similar projects shall be provided identifying when, where, and for whom the work was done. A current point-of-contact for identified references shall be provided.

1.4 DUST CONTROL

A. The amount of dust resulting from removal, salvage, and demolition operations shall be controlled to prevent the spread of dust to avoid creation of a nuisance in the surrounding area. Use of water to control dust will not be permitted when it will result in, or create, damage to existing building materials and hazardous or objectionable conditions such as ice, flooding, and pollution.

1.5 PROTECTION

A. Protection of Existing Historic Property
   1. Before beginning any removal, salvage, or demolition work, survey the site and examine the Drawings and Specifications to determine the extent of the work.
   2. Take necessary precautions to avoid damage to existing historic items that are to remain in place; to be reused, or to remain the property of the Owner.
   3. Items damaged by the Contractor shall be repaired and restored to original condition, or replaced, as approved by the Owner.
   4. Coordinate the work of this Section with all other work and construct and maintain shoring, bracing, and supports, as required.
   5. Ensure that structural elements are not overloaded and provide additional supports as may be required as a result of any cutting, removal, or demolition work performed under this Contract.

B. Protection From the Weather: The interior of building to remain and salvageable materials shall be protected from the weather at all times. Salvaged historic materials shall be stored out of contact with the ground and under weathertight covering.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 SALVAGED ITEMS

A. All salvaged material to remain property of Owner unless specifically noted otherwise. Salvage items to the maximum extent possible to allow for re-installation. Prior to any demolition work, historic items to be salvaged shall be removed from the structure, and documented and tagged for its specific location in the assembly. Removal of salvageable items shall be accomplished by hand labor to the maximum extent possible. Care shall be taken to not damage historic portions of the structure to remain or items identified for salvage. Furnishings, equipment, and materials not scheduled for salvage or recycling shall be removed prior to any salvaging procedures. Keep a complete record of all salvaged materials including the condition of such materials before, and after, salvage operations.

B. Wood: The following materials shall be removed intact and salvaged: exterior railing, finials, related trim.

3.2 RECYCLED MATERIALS

A. Recycle materials to the maximum extent possible. Removal of recyclable materials shall be accomplished by hand labor wherever possible. Historic portions of the structure to remain and items identified for salvage shall not be damaged while removing materials for recycling.

B. The following materials shall be recycled:
1. Dimension lumber.
2. Scrap wood.
3. Paper and cardboard.
4. Gypsum board.
5. Asphalt.
6. Rubble.
7. Glass.
8. Metals.

3.3 DISPOSITION OF MATERIALS

A. Title to materials and equipment to be demolished, except Owner and historical items, is vested in the Contractor upon receipt of Notice to Proceed. The Owner will not be responsible for the condition, loss, or damage to such property after Notice to Proceed.

B. Material salvaged for the Contractor shall be temporarily stored as approved by the Owner and shall be removed from the Owner’s property before completion of the Contract. Material salvaged for the Contractor shall not be sold on the site.

C. Salvaged items to remain the property of the Owner shall be removed in a manner to prevent damage and as directed by the Owner. Salvaged items shall be packed or crated to protect the items from damage. Items damaged during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents.

3.4 CLEAN-UP

A. Upon completion of the work, portions of structure to remain and adjacent areas and structures shall be cleaned of dust, dirt, and debris caused by salvage and demolition operations. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 − GENERAL

1.1 SUMMARY

A. This Section includes all labor, materials, equipment, operations, or methods listed, mentioned or scheduled on the plans and/or herein specified, including all incidentals necessary and required for completion of work under this Section.

B. Provide and install formwork for cast-in-place concrete, with shoring, bracing and anchorage.

B. Form accessories.

C. Stripping forms.

1.2 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Special Conditions and Division 1 of these Contract Documents.

B. Document 03 20 00 – Reinforcing Steel

C. Section 03 3000 - Cast in Place Concrete

1.3 SYSTEM DESCRIPTION

A. Design, engineer, and construct formwork, shoring, and bracing to meet design and code requirements, so that resultant concrete conforms to required shapes, lines, and dimensions.

B. Contractor shall be responsible for strength of forms. In general, deflection of finished surface shall not exceed that produced by 5/8 inch plywood against studs set on 12 inch centers.

1.4 QUALITY ASSURANCE

A. Construct and erect concrete formwork in accordance with ACI and 2019 CBC.

1.5 PRODUCT HANDLING

A. Protection: Protect formwork materials before, during and after installation and protect the installed work and materials of other trades.

B. Replacements: In the event of damage, immediately make repairs and replacements necessary to the acceptance of the City and Structural Engineer at no additional cost to the Owner.

1.6 SEQUENCING AND SCHEDULING

A. Obtain information from other trades and suppliers in sample time to schedule and coordinate the installation of items furnished by them to be embedded in concrete.

PART 2 − PRODUCTS

2 .1 FORM MATERIALS

A. Earth Forms: Acceptable for grade beams, footings and similar below grade structures provided the following:

1. Structural Drawings do not require and indicate otherwise;
2. Vertical excavated material will stand without caving;
3. Minimum reinforcing steel clearances are maintained;
4. Suitable provisions are taken to prevent raveling on top edges of excavation;
5. Suitable provisions are taken to prevent sloughing of loose material from walls of excavation;
6. Excavation is neatly cut;
7. Concrete which is exposed to view is poured against wood or metal forms to a minimum depth of 6 inches below finished grade;

B. Wood Forms for Exposed Concrete Not Otherwise Noted and Specified:

1. All wood forms shall be FSC.
2. DFPA graded HDO (High Density Overlaid) Plyform, Class I or II (as per strength and tolerance requirements), exterior, each piece grade marked.

2 .2 FORMWORK ACCESSORIES

A. Form Ties: Snap-off metal of fixed length; cone type; 1 inch break back dimension; free of defects that will leave holes no larger than 1 inch diameter in concrete surface.

B. Fillets for Chamfered Corners: Wood strips type; ~ ¾” in size; maximum possible lengths.

C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required; of strength and character to maintain formwork in place while placing concrete.

PART 3 − EXECUTION

3.1 EXAMINATION

A. Verify lines, levels, and measurements before proceeding with formwork.

3. 2 EARTH FORMS

A. Hand trim sides and bottoms of earth forms. Increase dimensions shown on drawings 1-1/2 inches for each form surface omitted.

B. Forms must be free of any debris, loose soil, and must not have standing water prior to placing concrete.

3.3 CONSTRUCTION OF FORMS

A. Rigidly support and substantially construct forms; erect plumb, straight and true to line, shape, and dimensions, and in precise position to form the lines and designs indicated, suitable for removal without prying against concrete.

B. Make forms tight without cracks and holes to prevent loss of fine particles from the concrete.

C. Construction joints shall be in accordance with requirements of Cast-In-Place Concrete, Division 3. Provide a surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints. Prior to subsequent pour, remove strip and tighten forms. Construction joints shall show no "overlapping" and off setting of concrete surfaces and shall, as closely as possible, present the same appearance as butted plywood joints. Joints in a continuous line shall be straight and true.

D. Provide fillet strips on external corners of beams and columns.

E. Provide forms for slabs, with removable leveling screeds for flat work.

F. Remove wood spreaders from forms prior to pour. No wood shall remain inside forms.

G. Form lumber from this project may be reused for concealed framing, providing lumber at the time of reuse meets the framing grade requirements specified; is in good condition, thoroughly clean, with nails removed.

3.4 INSERTS AND EMBEDDED ITEMS

A. Provide proper and adequate means for accurate positioning and securing bolts, hold-downs, reinforcing, and inserts in concrete.

B. Securely place embedded items, sleeves, and pockets, as indicated. Coordinate work of other sections. Use templates where necessary.

C. Do not cut reinforcing for embedded items and inserts unless specifically indicated on Drawings.

D. Do not embed piping in concrete, unless specifically authorized by City and indicated on Drawings.

E. Do not embed electrical conduit in concrete without specific written authorization from City and Structural Engineer. Locate conduit so as to keep the concrete at its maximum structural strength. In slabs on grade the outside diameter of conduit

shall not exceed 30 percent of the concrete thickness and shall be located at the centerline of slab. Conduits can be grouped in pairs, but minimum clear distance between single conduits or pairs shall be 6 inches.

3. 5 FORMWORK TOLERANCES

A. Wall Centerline Location: +/- 1/4 inch.

B. Slab on Grade Thickness: +/- 1/2 inch.

C. Other: +/- 1/4 inch.

3 .6 REMOVAL OF FORMS

A. Remove forms and falsework so as to ensure the complete safety of the structure. Do not remove supports until members have sufficient strength to safely support their own weight and superimposed loading with proper factor of safety. Do not remove forms and shoring without the authorization of the City and Structural Engineer. Authorization by the City and Structural Engineer of form removal shall not relieve the Contractor from responsibility for damage due to faulty construction or materials.

B. Remove forms for exposed concrete surfaces so as to preclude damage to finish. Do not use pinch bars and similar tools for prying against exposed surfaces.

C. Do not remove forms and shoring until the following minimum times have elapsed after concrete is placed:

1. Vertical Forms (Walls, Columns, Beam Sides): 7 days.
2. Side Forms (Footings, Slabs on Grade): 4 days.

D. Remove bolts, wires, clamps, rods, spreader ties, and other embedded items not necessary to the work to a minimum of 1 inch from the surface. Take precautions to eliminate danger of rust stains from form tie materials or other unprotected ferrous materials embedded in and adjacent to exposed concrete surfaces.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 − GENERAL

1.1 SUMMARY

A. This Section includes all labor, materials, equipment, operations, or methods listed, mentioned or scheduled on the plans and/or herein specified, including all incidentals necessary and required for completion of work under this Section.

B. Provide and install Reinforcing steel bars, welded steel wire fabric fabricated steel bar or rod mats for cast-in-place and precast/tilt-up concrete.

C. Support chairs, bolsters, bar supports, spacers, for supporting reinforcement.

1.2 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Special Conditions and Division 1 of these Contract Documents.

B. Section 03 3000 - Cast in Place Concrete

1.3 SUBMITTALS

A. Submit under provisions of City Standard Specification, Shop Drawings:

1. Submit fully detailed shop drawings, including bending schedules and bending diagrams. Indicate placing details and size location of reinforcing steel. Shop drawings shall be of such detail and completeness that fabrication and placement at the site can be accomplished without the use of contract drawings for reference.
2. Do not fabricate and place reinforcing steel before the shop drawings review has been completed by the City and Structural Engineer and returned to the Contractor. Review of shop drawings by the City and Structural Engineer will not relieve the Contractor of responsibility for errors or for failure in accuracy and complete placing of the work.

1.4 QUALITY ASSURANCE

A. Perform concrete reinforcement work in accordance with CRSI, Manual of Standard Practice.

B. Conform to ACI, and 2022 CBC.

C. Submit certified mill test reports (tensile and bending) for each heat or melt of steel prior to delivery of material to the job site. Where reinforcing is required to be welded, mill test reports shall verify the weld ability of the steel.

1.5 COORDINATION

A. Check Cityural, structural, mechanical and electrical drawings for anchor bolt schedules and locations, anchors, inserts, conduits, sleeves, and any other items which are required to be cast in concrete. Make necessary provisions as required so that reinforcing steel will not interfere with the placement of such embedded items.

1.6 PRODUCT HANDLING

A. Bundle reinforcement and tag with suitable identification to facilitate shoring, placing and transport.

B. Keep a sufficient supply of tested and approved reinforcement on the site to avoid delaying the work.

C. Take means necessary to protect reinforcing steel before, during, and after installation and to protect the work and materials of other trades.

D. Store reinforcing steel in a manner to prevent damage, excessive rusting, and fouling with dirt, grease and other bond-breaking coatings.

E. Take necessary precautions to maintain identification after the bundles of reinforcing steel have been broken.

F. In the event of damage, immediately make repairs and replacements necessary to the acceptance of the City and at no additional cost to the owner.

PART 2 − PRODUCTS

2.1 REINFORCING STEEL

A. Reinforcing Bars: New, free of loose rust. 1. Billet-Steel Bars: ASTM A615, Grade 60. Welded reinforcing bars shall be grade 60 conforming to ASTM A706.

B. Welded Wire Fabric: ASTM A185; flat sheets.

C. Tie Wire: 16 gauge minimum, black and annealed.

D. Accessories: Metal or plastic spacers, supports, ties, as required for spacing assembling and supporting reinforcing in place. Supports shall comply with CRSI, Manual of Standard Practice.

2.2 FABRICATION

A. Shop fabricate reinforcement in accordance with details on Drawings and 2022 CBC. Where specific details are not shown or noted, fabricate in conformance with ACI and CRSI.

B. Clean bars of loose rust, loose mill scale and substances which may decrease bond.

C. Bend bars cold and accurately to details on final reviewed shop drawings.

2.3 SOURCE QUALITY CONTROL

A. Tests shall be made in accordance with the 2022 CBC. The testing laboratory will select samples for physical tests of reinforcing steel from material at the place of distribution, test the reinforcing steel and submit results of tests to the City for review prior to fabrication.

1. Identified Reinforcing Steel: One tensile test and one bend test shall be made from a specimen from each 10 tons or fraction thereof of each size of reinforcing steel, if reinforcing is taken from bundles identified with heat number, is accompanied by mill analysis and mill test reports, and is properly tagged with an identification certificate.
2. Unidentified Reinforcing Steel: One tensile and one bend test will be made for each 2-1/2 tons of fractions thereof of each size of reinforcing steel.

B. Costs of tests to determine if unidentified steel complies with specified standards will be deducted by the District from the Contract Sum by Change Order.

PART 3 − EXECUTION

3.1 EXAMINATION

A. Carefully examine the installed work of other trades prior to installing reinforcing steel and verify that such work is complete to the point where work of this section may commence.

B. Ensure that reinforcing steel is installed in strict accordance with pertinent codes and regulations, the final reviewed shop drawings and original design.

C. In the event of discrepancy, immediately notify the City and Structural Engineer. Do not proceed with installation in areas of discrepancy until discrepancies have been fully resolved.

3.2 PLACING REINFORCING STEEL

A. Place reinforcing steel in accordance with the Drawings, final reviewed shop drawings and the CRSI Manual of Standard Practice. Install reinforcement accurately and secure against movement, particularly under the weight of workers and the placement of concrete.

B. Locate reinforcement accurately in the forms and hold in place by means of supports adequate to prevent displacement and to maintain reinforcement at proper distances from form face. Place supports in accordance with CRSI Manual of Standard Practice. Use of wood supports and spacers inside the forms is not permitted.

C. Support reinforcement for slabs in precast concrete blocks or chairs spaced 4'-0" on center (maximum) both ways, staggered. Size blocks or chairs so the

reinforcing is maintained at the proper elevation in the slab.

D. Wherever conduits, piping, inserts, sleeves, and other embedded items interfere with placing of reinforcing steel, obtain City's approval of methods of procedure before concrete is placed. Bending of bars around openings and sleeves is not permitted.

E. Tie reinforcing rigidly and securely with steel tie wire at splices, at crossing points and at intersections in the position shown on Drawings. After cutting, bed tie wire in such a manner that concrete placement will not force the wire ends to surface of concrete.

F. Make splices only at those locations shown on the Drawings or as authorized by the City and Structural Engineer. Stagger splices in adjacent bars per Class "B" (50 percent within required lap length).

G. Place welded wire fabric in as long lengths as practicable. Wire laps. Lap edges a minimum of 2 inches center to center of selvage wires with laps a minimum of 2 inches greater than transverse wire spacing; offset end laps in adjacent widths.

H. Tie dowels securely in place before concrete is deposited. In the event there are no bars in position to which dowels may be tied, add #3 bars (minimum) to provide proper support and anchorage. Do not bend dowels after placement of concrete.

3.3 FIELD QUALITY CONTROL

A. Installation and placement of reinforcing steel will be inspected by an authorized inspector prior to concrete pour.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

1.1 PART 1 − GENERAL

1.2 SUMMARY

A. This Section includes all labor, materials, equipment, operations, or methods listed, mentioned or scheduled on the plans and/or herein specified, including all incidentals necessary and required for completion of work under this Section.

B. Provide and install Portland cement concrete site work complete, including the following principal items:

1. Concrete foundation

1.2 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Special Conditions and Division 1 of these Contract Documents.

C. Document 03 10 00 - Concrete Formwork

D. Document 03 20 00 – Reinforcing Steel

1.3 SUBMITTALS FOR REVIEW

A. The Contractor's Testing Laboratory's certificate of compliance.

B. The Contractor shall submit:

1. Certified copies of mix designs for each concrete class specified including compressive strength test reports. Mix design shall be signed by California Registered Civil Engineering to verify compliance with CBC Chapter 19.
2. Certification that materials meet requirements specified.
3. Certification from vendor that samples originate from and are representative of each lot proposed for use.
4. Submit location of construction joints and cold joints when different from that shown on the drawings.

C. The Testing Agency will submit reports on tests and inspections performed to the City and Structural Engineer, and the Contractor.

D. Schedule of placing for the Construction Manager’s review before starting Work.

E. Keep record at the job site showing time and place of each pour of concrete together with transit mix delivery slip certifying contents of the pour per CBC 1705.3. Make records available to the City.

1.4 QUALITY ASSURANCE

A. Reference and Standards:

1. Perform work in accordance with all applicable laws, codes and regulations required by the State of California.
2. Reference to "Standard Specifications" shall mean the current Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CALTRANS.
3. The American Concrete Institute (ACI): "Manual of Concrete Practice," Parts 1, 2 and 3.
4. California Code of Regulations. Title 24, 2022 edition, provisions also known as California Building Code (CBC).
5. American Society for Testing and Materials (ASTM).

B. Stipulations:

1. The Contractor shall be responsible for quality of concrete in place and shall bear burden of proof that concrete meets minimum requirements. Use the same mix design for all exposed concrete.

2. Placing of concrete by means of pumping will be an acceptable method of placement providing that the Contractor can demonstrate that, with the proposed additives, the specified concrete strengths and slump will be met.

1.5 FIELD SAMPLES AND TESTS

A. The Contractor or the Contractor's representative will select a qualified testing laboratory to take samples for testing during the course of the work as considered necessary. The Owner will pay costs for such tests. Contractor shall cooperate in making tests and shall be responsible for notifying the designated laboratory in sufficient time to allow taking of samples at time of pour.

B. Should tests show that concrete is below specified strength, Contractor shall remove all such concrete, as directed by the Project Inspector. Full cost of removal of low strength concrete, its replacement with concrete of proper specified strength and testing, shall be borne by Contractor.

C. The Testing Laboratory Qualifications: The Testing Laboratory shall be approved by the city and under direction of a Civil Engineer registered in the State of California, shall have operated successfully for four years prior to this work, and shall conform to requirements of ASTM E329.

D. All samples and testing shall conform with CBC Sections- 1903, 1905 and 1916.

1.6 COORDINATION

A. Coordinate items of other trades. Contractor shall be responsible for the proper installation of all accessories embedded in the concrete and for the provision of holes, openings, etc., necessary to the execution of the work of the trades.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Supply ready mixed concrete throughout. Batch, mix and transport in accordance with ASTM C-94, "Specifications for Ready Mixed Concrete."

B. Mix and deliver concrete in quantities that will permit immediate use only.

C. Indiscriminate addition of water for any reason will be cause for rejection of the load.

D. Ensure storage facilities are weather tight and dry.

E. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

F. Store bulk cement in bins capable of preventing exposure to moisture.

G. Use sacked cement in chronological order of delivery. Store each shipment so that it may be readily distinguishable from other shipments.

PART 2 − PRODUCTS

2.1 CONCRETE CLASSES

USES	STRENGTH	AGGREGATE	WEIGHT	SLUMP
Drilled Piers	3,000 psi	¾ Maximum	145 pcf	4” +/- 1”

A. Class: Identifies all concrete as specified.

B. Strength: Compressive strength in psi after 28-days when tested in accordance with ASTM C39. All concrete shall develop compression strength specified in 28-days. To meet above requirements, mix shall be designed such that average compressive strength will exceed specified 28-day strength by an amount as specified by ACI 318.

C. Aggregate: Maximum size in inches.

D. Weight: Pounds per cubic foot, air dry.

E. Slump: In inches when tested in accordance with ASTM C143.

F. Concrete mixes shall be in accordance with CalTrans Standard Specifications Section 90.

2.2 CONCRETE MATERIALS

A. General Requirements:
1. All materials shall be Local/Regional Materials.
2. Cement and aggregates shall have proven history of successful use with one another. Sources of cement and aggregate shall remain unchanged throughout work unless the City and Structural Engineer approves request for change made at least 10-days prior to anticipated date of casting.
3. Ready-mixed concrete shall meet requirements of ASTM C94.
4. Deviations in properties of materials tested by the Testing Agency shall be cause for their rejection pending additional test results and redesign of mix.
5. No frozen aggregates will be permitted.

B. Cements:

1. ASTM C150, Type II. Use one brand of cement throughout project unless otherwise acceptable to City and Structural Engineer.
2. Maximum water/cement ratio of 0.45 for all cast-in-place concrete.

C. Fly Ash: ASTM C618, Type F; 15% (as percentage replacement of cement) and per CBC 1903.6

D. Aggregates:

1. Coarse: ASTM C33. Coarse aggregate shall consist of a clean, hard, fine grained, sound crushed rock, or washed gravel or a combination of both. It shall be free from oil, organic matter or other deleterious substances and shall not contain more than two percent by weight of shale or cherty material. "Cleanness value shall not be less than 75 when tested per MM Test Method, 227 and conforming to CBC Section 1903A.6.
2. Fines: ASTM C33. Sand equivalent shall be not less than 75 when tested as per ASTM D2419.
3. Provide aggregates from a single source for exposed concrete.

E. Water: Clean and potable, free from impurities detrimental to concrete and free from deleterious amounts of acids, alkalis, scale, or organic materials per ACI 318 and ASTM C1602.

F. Water-Reducing Admixture: Must be compatible with color pigments where required. ASTM C494, Type A, that does not contain non-lignini sulfonate. Same as Grace Construction Materials' "WRDA" with hycol or Master Builders "Pozzolith" 322N.

G. High-Range Water-Reducing Admixture: Must be compatible with color pigments where required. ASTM C 494, Type F, BASF Corporation “MasterRheobuild 1000” (formerly"RHEOBUILD 1000") or W. R. Grace’s “Daracem” or “ADVA” Series.

H. Other Admixtures: Only as accepted by the City and Structural Engineer.

I. Curing Materials: Curing Compound: ASTM C309. Water loss – not more than 0.55 kg/m2 in 72 hours; Light Reflectance – not less than 60%. Same as Grace Construction Materials' "Horn Clear Seal"; Grimes Co.'s "Sealcrete"; Master Builders' "Masterseal W", or approved equal product.

J. Concrete Slab Vapor Barrier: ASTM E1745 Class A, B & C– Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs. 15 mil. Stego Wrap by Stego Industries LLC or approved equal product.

K. Capillary Break: The gravel layer below concrete slabs shall be 6" of ¾" clean, free draining crushed rock.

2.3 ANCILLARY MATERIALS

A. Concrete Sealer: BASF "Kure 1315", NoxCrete "Cure and Seal 100-300E" or approve equal.

2.4 MIXES

A. General Requirements:

1. Certified copies of mix designs for each concrete class specified including compressive strength test reports. Mix design shall be signed by California Registered Civil Engineering to verify compliance with CBC Chapter 19 and the project specifications for each concrete class.
2. Mix design shall include compression strength test reports per ACI 318, section 5.3 indicating conformance with specifications.
3. Mix shall be designed, tested, and adjusted, if necessary, in ample time before first concrete is scheduled to be placed. Laboratory data and strength test results for revised mix design shall be submitted to City and Structural Engineer prior to using in project.
4. The Contractor's mix designs shall be subject to review by the City, Structural Engineer and by the Owner's Testing Agency.
5. The Contractor shall instruct Laboratory to base mix design on use of materials tested and approved by the Owner's Testing Agency.
6. Introduction of calcium chloride will not be permitted
7. Unspecified admixtures will not be permitted, unless signed by California Registered Civil Engineering to verify compliance with CBC Chapter 19, reviewed and approved by the City and Structural Engineer.

B. Drill Pier Mix requirements:

1. Maximum water/cement ratio: 0.5.
2. Slump: 4" +/- 1" Maximum
3. Fly ash content: 15 percent (as percentage replacement of cement).
4. Do not use air entrainment additives.
5. Use of Water-Reducing admixture is required. Use High Range Water-Reducing admixture (super plasticizer) when required to maintain workability and pumpability.

C. Patching Mortar: Mix in proportions by volume of one part cement to two parts fine sand.

2.5 MIXING

A. Batching Plant Conditions:

1. Ensure equipment and plant will afford accurate weighing, minimize segregation and will efficiently handle all materials to satisfaction of the City, Structural Engineer and the Owner's Testing Agency.
2. Replace at no additional expense equipment the City, Structural Engineer, and the Owner's Agency deem inadequate or unsuitable.
3. Use approved moisture meter capable of determining moisture content of sand.

B. General Requirements:

1. Thoroughly clean concrete equipment before use for Cityural concrete mixes to avoid contamination.
2. Mix cement, fine and coarse aggregates, admixtures and water to exact proportions of mix designs. Method of mixing shall comply with ACI 318 Section 5.3.
3. Measure fine and coarse aggregates separately according to approved method which provides accurate control and easy checking.
4. Adjust grading to improve workability; do not add water unless otherwise directed.
5. Maintain proportions, values, or factors of approved mixes throughout work.
6. Mix concrete in transit mixers five minutes immediately prior to discharge in addition to mixing as called for by ACI 304 and ASTM C94.

C. Admixtures: Use automatic metering dispenser to introduce admixture into mix. Dispenser shall be recommended and calibrated by admixture manufacturer.

2.6 SOURCE QUALITY CONTROL

A. The Owner's Testing Agency will:

1. Review mix designs, certificates of compliance, and samples of materials the Contractor proposes to use.

2. Test and inspect materials, as necessary, in accordance with ACI 318, section 5.6-5.11 and CBC Sections 1903 and 1913 for compliance with requirements.

3. Take samples as required from the Contractor's designated sources.

4. Take one grab sample for each 100 tons of Portland cement except that, when used in bulk loading ready-mix plants where separate bins for pre-tested cement are not available, take grab samples for each shipment of cement placed in bin with not less than one sample being taken for each day's pour and subsequently test such samples if required by the City and Structural Engineer.

5. Test both coarse and fine aggregate by use of solution of sodium or magnesium sulfate, or both whenever in the judgment of the City and Structural Engineer such tests are necessary to determine quality of material. Perform such tests in accordance with ASTM C88. Loss shall not exceed 6-percent of either fine or coarse aggregate. Aggregate failing to comply with this requirement may be used in the Work provided it contains less than 2-percent of shale and other deleterious particles and shows a loss in soundness test of not more than 10-percent when tested in the sodium sulphate solution. Test aggregates as required by CBC Section 1903.6.

6. Test for sand equivalent of fine aggregate in accordance with California Test 217.

7. Test for cleanness value of coarse aggregate in accordance with California Test 227.

8. Inspect plant prior to any work to verify following:
   a. Plant is equipped with approved metering devices for determining moisture content of fine aggregate.
   b. Other plant quality controls are adequate.

9. Continuously inspect quality and quantity of materials used in transit mixed concrete, in batched aggregates and ready-mixed concrete at mixing plant or other location per CBC Section 1913 where other materials are measured.

B. Waiver of Batch Plant Inspection:

1. The concrete supplier shall furnish to the City certification that the cement proposed conforms to the requirements of CBC section 1913.1:
   a. Testing Agency shall check the first batching at the start of work and furnish mix proportions to the licensed Weighmaster.
   b. Licensed Weighmaster shall identify material quantities and certify each load by a ticket.
   c. Project Inspector shall collect truck mix tickets with load identification and maintain a daily record of placement. Trucks without a load ticket identifying the mix shall be rejected. Copies of daily placement record shall be submitted to the City.
   d. At the end of the project, the Weighmaster shall submit an affidavit to City certifying that all concrete supplied conforms to proportions established by mix designs.

PART 3 − EXECUTION

3.1 GENERAL REQUIREMENTS

A. Install all concrete work true to line and grade as indicated on the drawings. Installation shall conform with the standards and requirements of ACI 117-06-Specifications for Tolerance for concrete construction and materials.

B. Correct irregularities to the satisfaction of the City and Structural Engineer.

3.2 PREPARATION

A. Take every precaution to obtain a subgrade of uniform bearing power by compaction to provide a firm base.

B. Subgrade shall be kept moist and shall not be allowed to dry out before placement of concrete. Place no material on muddy subgrade.

3.3 PLACING CONCRETE

A. The City, Structural Engineer, and Testing Laboratory shall be notified at least 48 hours before placing concrete.

B. Place concrete in accordance with ACI 318, section 5.10.

C. Place concrete in cycles as a continuous operation to permit proper and thorough integration and to complete scheduled placement. Place no concrete where sun, wind, heat, or facilities prevent proper finishing and curing.

D. Convey concrete as rapidly and directly as practicable to preserve quality and to prevent separation from rehandling and flowing; do not deposit concrete initially set. Cast concrete within ninety (90) minutes after adding water unless otherwise noted. Retempering of concrete which has partially set will not be permitted.

E. Take precautions to avoid damage to under-slab moisture barrier and displacement of reinforcement and formwork.

F. Deposit concrete vertically in its final position. Avoid free falls in excess of four feet where reinforcement will cause segregation and in typical conditions unless the City and the Structural Engineer approves otherwise.

G. Keep forms and reinforcement clean above pour line by removing clinging concrete with wire brush before casting next lift. Also remove leakage through forms.

H. Interruption in casting longer than 60-minutes shall be cause for discontinuing casting for remainder of day. In this event, cut back concrete and provide construction joints as directed by the Structural Engineer; clean forms and reinforcement as necessary to receive concrete at a later time.

I. Hot Weather Concreting: Conform to ACI 305R and following requirements when mean daily temperature rises above 75 degrees Fahrenheit.

1. An upper temperature limit of concrete mixes shall be established by the Contractor for each class of concrete. Concrete temperature during placing shall not be so high as to cause difficulty from loss of slump, flash set, or cold joints, and shall not exceed 90°F. Other project climatic conditions detrimental to concrete quality such as relative humidity, wind velocity, and solar radiation shall also be considered.
2. Trial batches of concrete for each mix design shall be made at the limiting mix temperature selected. In lieu of trial batches, compression strength test reports (20 minimum) at the limiting temperature for each proposed mix shall be submitted to the Owner's testing laboratory for review.
3. Practices to maintain concrete below maximum limiting temperature shall be

in accordance with ACI 305. Concrete ingredients may be cooled before mixing, or flake ice or well-crushed ice of a size that will melt completely during mixing may be substituted for part of the mixing water.

4. Practices to avoid the potential problems of hot weather concreting shall be employed by the Contractor in accordance with ACI 305.
5. When the temperature of the reinforcing steel or steel deck forms is greater than 120°F, reinforcing and forms shall be sprayed with water just prior to placing the concrete.

J. Cold Weather Concreting:

1. No placement of concrete will be allowed at temperatures below 20 degrees Fahrenheit or if mean daily temperature for curing period is anticipated to be below 20 degrees Fahrenheit.
2. No concrete placement will be allowed on frozen subgrade.
3. Conform to ACI 306 and following requirements when mean daily temperature falls below 40 degrees Fahrenheit.
   a. Reinforcement, forms or ground to receive concrete shall be completely free from frost.
   b. Concrete at time of placement for footings shall have temperature no lower than 50 degrees Fahrenheit, for all other concrete this minimum temperature at time of placement shall be 60 degrees Fahrenheit. Maximum temperature shall be 90 degrees Fahrenheit.
   c. Concrete shall be maintained at temperature no lower than 50 degrees Fahrenheit for minimum 7-day period after placement by means of blanket insulation, heaters, or other methods as approved by the City and Structural Engineer.
   d. Use of calcium chloride or admixtures containing calcium chloride as accelerators will not be permitted.
   e. The Contractor shall keep a record of concrete surface temperature for first 7-days after each pour. This record shall be open to inspection by the Inspector.

K. Consolidating:

1. Use vibrators for thorough consolidation of concrete.
2. Provide vibrators for each location during simultaneous placing to ensure timely consolidation around reinforcement, embedded items and into corners of forms; ensure availability of spare vibrators in case of failures. Vibrate through full depth of freshly placed concrete.
3. Do not place vibrators against reinforcement, attach to forms, or use to spread concrete.
4. Exposed Concrete: Vibrate with rubber type heads and, in addition, spade along forms with flat strap or plate.

L. Construction Joints:

1. Verify location and conformance with typical details; provide only where designated or approved by the City and Structural Engineer. Comply with ACI 318, section 6.4.
2. All horizontal and vertical construction joints to be thoroughly sandblasted to clean and roughen entire surface to minimum 1/4-inch relief exposing clean coarse aggregate solidly embedded in mortar matrix.
3. Just prior to depositing concrete, the surface of the construction joint shall be

thoroughly wetted.

M. Walls and Other Formed Elements:

1. Space points of deposit to eliminate need for lateral flow. Placing procedures of concrete in forms permitting escape of mortar, or flow of concrete itself, will not be permitted.
2. Level top surface upon stopping work.
3. Take special care to fill each part of the forms by depositing concrete directly as near final position as possible, and to force concrete under and around reinforcement, embedded items, without displacement.
4. After concrete has taken its initial set, care shall be exercised to avoid jarring forms or placing any strain on ends of projecting reinforcement.
5. Where backfill is placed against a wall, it shall be adequately shored until it has attained design strength. All shoring shall be designed by a structural engineer licensed in the State of California. Signed calculations and shoring drawings shall be submitted to the EOR for review.

3.3 CURING

A. General Requirements:

1. Take curing measures immediately after casting and for measures other than application of curing compound, extend for seven days. The City and Structural Engineer may recommend longer periods based upon prevailing temperature, wind and relative humidity. Comply with ACI 318, section 5.11.
2. Avoid alternate wetting and drying and fluctuations of concrete temperature.
3. Protect fresh concrete from direct rays of sun, rain, freezing, drying winds, soiling, and damage.
4. Do not permit curing method to affect adversely finishes or treatments applied to finish concrete.

B. Curing Method, Typical: Obtain the City’s and Structural Engineer's approval of alternate measures.

1. Keep forms and concrete surfaces moist during period forms are required to remain in place.

C. Cure exposed concrete in accordance with CalTrans Standard Specifications Section 90.

D. Only water shall be used for curing concrete.

3.5 FIELD QUALITY CONTROL

A. The Testing Laboratory will sample and test cast-in-place concrete as required by the Division of State Citys. Tests, if required, will be made in accordance with ACI 318, section 5.4-5.11, and CBC Section 1903.

1. Review concrete mix designs.
2. Inspect concrete and grout placement continuously.
3. Test concrete to control slumps according to ASTM C143.
4. Continuously monitor concrete temperature as it arrives on the site.

5. Test concrete for required compressive strength in accordance with ACI 318, section 5.6.2 through 5.6.5:
   a. Make and cure three specimen cylinders according to ASTM C31 for each 50 cubic yards, or fraction thereof, of each class poured at site each day.
   b. Retain one cylinder for 7-day test and two for the 28-day test.
   c. Number each cylinder 1A, 1B, 1C, 2A, 2B, 2C, etc; date each set; and keep accurate record of pour each set represents.
   d. Transport specimen cylinders from job to laboratory after cylinders have cured for 24-hours on site. Cylinders shall be covered and kept at air temperatures between 60 and 80 degrees Fahrenheit.
   e. Test specimen cylinders at age 7-days and age 28-days for specified strength according to ASTM C39.
   f. Base strength value on average of two cylinders taken for 28-day test.
6. Test and inspect materials, as necessary, in accordance with ACI 318, MM Test Method 227 (Coarse Aggregates) and MM Test Method 217 (Fine Aggregates), for compliance with requirements specified in this Section.

B. The Contractor shall:

1. Submit ticket for each batch of concrete delivered to job site. Ticket shall bear the following information:
   a. Design mix number.
   b. Signature or initials of ready mix representative.
   c. Time of batching.
   d. Weight of cement, aggregates, water and admixtures in each batch with maximum aggregate size.
   e. Total volume of concrete in each batch.
   f. Notation to indicate equipment was checked for contaminants prior to batching.
2. Pay the Testing Agency for taking core specimens of hardened structure and testing specimen according to ASTM C88 and C42 when laboratory tests of specimen cylinders show compressive strengths below specified minimum.

3.6 CLEANING, PATCHING AND DEFECTIVE WORK

A. Where concrete is under strength, out of line, level or plumb, or shows objectionable cracks, honeycombing, rock pockets, voids, spalling, exposed reinforcement, signs of freezing or is otherwise defective, and, in the City's and Structural Engineer’s judgment, these defects impair proper strength or appearance of the work, the City and Structural Engineer will require its removal and replacement at the Contractor's expense.

B. Immediately after stripping and before concrete is thoroughly dry, patch minor defects, form-tie holes, honeycombed areas, etc., with patching mortar. Patch shall match finish of adjacent surface unless otherwise noted. Remove ledges and bulges.

C. Compact mortar into place and neatly file defective surfaces to produce level, true planes. After initial set, dress surfaces of patches mechanically or manually to obtain same texture as surrounding surfaces.

D. Rock Pockets:
1. Cut out to full solid surface and form key.
2. Thoroughly wet before casting mortar.

3. Where the City and Structural Engineer deems rock pocket too large for satisfactory mortar patching as described, cut out defective section to solid surface, key and pack solid with concrete to produce firm bond and match adjacent surface.

E. Cleaning

1. Insure removal of bituminous materials, form release agents, bond breakers, curing compounds if permitted and other materials employed in work of concreting which would otherwise prevent proper application of sealants, liquid waterproofing, and other delayed finishes and treatments.

2. Where cleaning is required, take care not to damage surrounding surfaces or leave residue from cleaning agents.

3.7 PROTECTION

A. Protect concrete from injurious action of the elements and defacement of any nature during construction operations.

B. Protect exposed corners of concrete from traffic or use which will damage them in any way.

C. Make provisions to keep all exposed concrete free from laitance caused by spillage or leaking forms or other contaminants. Do not allow laitance to penetrate, stain, or harden on surfaces which have been textured.

D. Remove and replace pavement that does not comply with requirements in this Section.

E. Protect pavement from damage. Do not permit construction traffic on concrete pavement. Exclude other traffic from pavement for at least 28 days after placement.

F. Maintain pavement free of stains, discoloration, dirt, and other foreign material. Sweep pavement not more than two days before date scheduled for Substantial Completion inspections.

3.8 DEFECTIVE CONCRETE

A. If any concrete work is not formed as indicated, is under strength concrete, is concrete is out of line, level or plumb, or showing objectionable cracks, honeycomb, rock pockets, voids, spalling or exposed reinforcing, it shall be removed, repaired, or replaced as directed by the Project Inspector.

3.9 CLEANING

A. During construction, wash off work as quickly as possible when stains or splotches are unavoidable.

B. Upon completion, clean exposed surfaces carefully. Brushing and cleaning solution, if used, must be preceded and followed with a through rinsing of clear water. No sandblasting will be allowed to clean surfaces.

C. Remove from premises; equipment, debris and surplus material needed for, or resulting from, this work. Remove all concrete waste from planting areas and legally dispose of it.

D. All work shall be left in a condition satisfactory to the Project Inspector.

E. Perform Work under this Document to keep affected portions of building site neat, clean, and orderly. Remove, immediately upon completion of Work under this Section, surplus materials, rubbish, and equipment associated with or used in performance. Be aware that failure to perform clean-up operations within 24 hours of notice by City and Structural Engineer will be considered adequate grounds for having work done by others at no added expense to the Owner.

END OF SECTION

SECTION 04 03 23 - HISTORIC BRICK UNIT MASONRY REPOINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes historic treatment work consisting of repointing brick masonry as follows:

1. Repointing joints with mortar and sealant.
2. Widening joints.

B. Related Requirements:

1. Section 01 35 91 "Historic Treatment Procedures" for general historic treatment requirements.

1.3 ALLOWANCES

A. Preconstruction testing is part of testing and inspecting allowance.

1.4 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi

1.5 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference on historic masonry repair and repointing at Project Site, or other location as agreed.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to masonry historic treatment and repointing.
2. Review methods and procedures related to repointing historic brick masonry, including, but not limited to, the following:

a. Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
b. Materials, material application, sequencing, tolerances, and required clearances.
c. Quality-control program.
d. Fire-protection plan.
e. Unit masonry historic treatment program.

f. Coordination with building occupants.

1.6 SEQUENCING AND SCHEDULING

A. Conduct a mortar analysis to determine the historic mix to be matched.
   1. The sample of the historic mortar for the mortar analysis should be taken from an area not subject to weathering, i.e. concealed area within wall or attic.

B. Order sand, gray portland cement, and NHL based on results of mortar analysis for pointing mortar immediately after approval of samples and mockups. Take delivery of and store at Project site a sufficient quantity to complete Project.

C. Work Sequence: Perform masonry historic treatment work in the following sequence, which includes work specified in this and other Sections:

   1. Remove plant growth.
   2. Inspect masonry for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
   3. Remove paint.
   4. Clean masonry.
   5. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
   6. Repair masonry, including replacing existing masonry with new masonry materials.
   7. Rake out mortar from joints to be repointed.
   8. Point mortar and sealant joints.
   9. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
   10. Allow longer cure time for NHL pointing mortar prior to application of paints, coatings, or sealers, per mortar and coating manufacturer’s recommendations - approximately 28-days and having a moisture reading less than 12%.

1.7 ACTION SUBMITTALS

A. Product Data: For each type of product.

   1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
   2. Include recommendations for product application and use. Include test data substantiating that products comply with requirements.

B. Shop Drawings:

   1. Include plans, elevations, sections, and locations of repointing work on the structure.
   2. Show provisions for expansion joints or other sealant joints.
   3. Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of contact or anchorage.

C. Samples for Initial Selection: For the following:

1. Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or plastic channels.

    a. Have each set contain a close color range of at least six Samples of different mixes of colored sands and cements that produce a mortar matching the existing, cleaned mortar when cured and dry.
    b. Submit with precise measurements on ingredients, proportions, gradations, and sources of colored sands from which each Sample was made.

2. Sand Type Used for Pointing Mortar: Minimum 8 oz. of each in plastic screw-top jars.

    a. For blended sands, provide Samples of each component and blend. Identify blend ratio.
    b. Identify sources, both supplier and quarry, of each type of sand.

3. Sealant materials.
4. Include similar Samples of accessories involving color selection.

D. Samples for Verification: For the following:

1. Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or plastic channels.

    a. Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.

2. Sealant materials.
3. Accessories: Each type of anchor, accessory, and miscellaneous support.

1.8 INFORMATIONAL SUBMITTALS

1.9 Qualification Data: For historic treatment specialists including field supervisors and workers and testing service.

A. Preconstruction Test Reports: For existing masonry units and mortar.

B. Quality-control program.

C. Unit masonry historic treatment program.

1.10 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic masonry repointing specialist. Experience in pointing or repointing only new or nonhistoric masonry is insufficient experience for masonry historic treatment work.

B. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use

materials and tools without damaging masonry. Include provisions for supervising worker performance and preventing damage.

C. Unit Masonry Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of historic treatment work, including protection of surrounding materials and Project site.

1. Include methods for keeping pointing mortar damp during curing period.
2. If materials and methods other than those indicated are proposed for any phase of historic treatment work, add to the quality-control program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.

D. Mockups: Prepare mockups of historic treatment on existing surfaces to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Widening Joints: Widen a joint in two separate locations as directed.
2. Repointing: Rake out joints in two separate areas as indicated for each type of repointing required, and repoint one of the areas.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless the City specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Training in the use and mixing of NHL mortar by the NHL manufacturer is mandated. Manufacturer’s Representative to participate in mockup review.

1.11 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Owner will engage a qualified testing agency to perform preconstruction testing on masonry units as follows:

1. Provide test specimens as indicated and representative of proposed materials and existing construction.
2. Existing Mortar: Test according to ASTM C 295, modified as agreed by testing service and the City for Project requirements, to determine proportional composition of original ingredients, sizes and colors of aggregates, and approximate strength. Use X-ray diffraction, infrared spectroscopy, and differential thermal analysis to supplement microscopical methods. Carefully remove existing mortar from within joints at five locations designated by the City.
3. Temporary Patch: As directed by City Representative, provide temporary materials at locations from which existing samples were taken.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.

D. Store lime putty covered with water in sealed containers.

E. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.13 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit repointing work to be performed according to product manufacturers' written instructions and specified requirements.

B. Temperature Limits, General: Repoint mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.

C. Cold-Weather Requirements: Comply with the following procedures for mortar-joint pointing unless otherwise indicated:

1. When air temperature is below 40 deg F, heat mortar ingredients and existing masonry walls to produce temperatures between 40 and 120 deg F.
2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for seven days after pointing.

D. Hot-Weather Requirements: Protect mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.

E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Source Limitations: Obtain each type of material for repointing historic masonry from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 MORTAR MATERIALS

A. For use at brick at all facades. Allow colors and aggregates for each location and application:

1. Type NHL 3.5 mortar, as manufactured by Trans Mineral USA, mixed with the volumetric proportions determined by the mortar analysis.
2. Type N mortar, where appropriate to match mortar analysis
3. Use sand with size, color, and texture necessary to match existing original mortar. Sands should be well-graded, and ranging in particle size of 0.075mm to 5mm (passing #200 to #4 sieves, respectively). The amount of sand passing the #200 sieve should not exceed 2 percent.
4. NHL mortar benefits from higher workability. Achieve workability by additional mixing, rather than the addition of more water. Refer to manufacturer's printed instructions and manufacturer's representative.
5. Aggregates:

    a. Sand: ASTM C 144 to match color and texture of existing original mortar. Sand shall not contain more than 50 parts per million of chloride ions and shall be free of organic contaminants. Provide sand with rounded edges.
    b. Course Aggregates: ASTM C 404 with maximum size of 1/2 inch diameter. Aggregate shall not contain more than 50 parts per million of chloride ions and shall be free of organic contaminants.

6. Admixtures: No admixtures shall be used without prior written approval of the City.
7. Mortar Color: Shall be achieved by use of sands rather than pigments and shall match original cleaned mortar of each type at each type of brick masonry.
8. Mortar Pigments: Shall not be used unless mortar color match cannot be achieved with sands alone. Obtain approval for use of pigments by the City in writing.

    a. ASTM C 979/C 979M, compounded for use in mortar mixes, and having a record of satisfactory performance in masonry mortars.

2.3 ACCESSORY MATERIALS

A. Sealant Materials:

1. Sealant manufacturer's standard elastomeric sealant(s) of base polymer and characteristics indicated below and according to applicable requirements in Section 07 92 00 "Joint Sealants."

    a. Type: Single-component, nonsag urethane sealant.

2. Colors: Provide colors of exposed sealants to match colors of mortar adjoining installed sealant unless otherwise indicated.
3. Ground-Mortar Aggregate: Custom crushed and ground pointing mortar sand or existing mortar retrieved from joints. Grind to a particle size that matches the adjacent mortar aggregate and color. Remove all fines passing the 100 sieve.

B. Joint-Sealant Backing:

1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended in writing by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

C. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

D. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:

1. Previous effectiveness in performing the work involved.
2. Minimal possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could do the following:

a. Remove, alter, or harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in Contract.
b. Leave residue on surfaces.

2.4 MORTAR MIXES

A. Preparing Lime Putty: Slake quicklime and prepare lime putty according to appendix to ASTM C 5 and manufacturer's written instructions.

B. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

C. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without the City's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not add pigment exceeding 10 percent by weight of the cementitious or binder materials, except for carbon black, which is limited to 2 percent, unless otherwise demonstrated by a satisfactory history of performance.

D. Do not use admixtures in mortar unless otherwise indicated.

PART 3 - EXECUTION

3.1 HISTORIC TREATMENT SPECIALIST

A. Historic Treatment Specialist Firms: Subject to compliance with requirements.

3.2 PROTECTION

A. Prevent mortar from staining face of surrounding masonry and other surfaces.

1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
3. Immediately remove mortar splatters in contact with exposed masonry and other surfaces.

B. Remove gutters and downspouts and associated hardware adjacent to immediate work area and store during masonry repointing work. Reinstall when repointing is complete.

1. Provide temporary rain drainage during work to direct water away from building.

3.3 BRICKWORK REPOINTING, GENERAL

A. Appearance Standard: Repointed surfaces are to have a uniform appearance as viewed from 20 feet away by Preservation Architect.

3.4 REPOINTING BRICKWORK

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.
2. Joints indicated as sealant-filled joints.
3. Joints at locations of the following defects:

a. Holes and missing mortar.
b. Cracks that can be penetrated 1/4 inch or more by a knife blade 0.027 inch thick.
c. Cracks 1/8 inch or more in width and of any depth.
d. Hollow-sounding joints when tapped by metal object.
e. Eroded surfaces 1/4 inch or more deep.
f. Deterioration to point that mortar can be easily removed by hand, without tools.
g. Joints filled with substances other than mortar.

B. Do not rake out and repoint joints where not required.

C. Rake out joints as follows, according to procedures demonstrated in approved mockup:

1. Remove mortar from joints to depth of 2 times joint width, but not less than 1/2 inch or not less than that required to expose sound, unweathered mortar. Do not remove unsound mortar more than 2 inches deep; consult Architect for direction.

2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of bricks or widen joints. Replace or patch damaged bricks as directed by City.

    a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without City's written approval based on approved quality-control program.
    b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar in bed joints and mortar in head joints by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.

D. Notify City of unforeseen detrimental conditions, including voids in mortar joints, cracks, loose bricks, rotted wood, rusted metal, and other deteriorated items.

E. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After deep areas have been filled to same depth as remaining joints, point joints by placing mortar in layers not greater than 3/8 inch. Fully compact each layer and allow it to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

    a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
    b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Remove mortar and repoint.

F. Pointing with Sealant: Comply with Section 07 92 00 "Joint Sealants" and as follows:

1. After raking out, keep joints dry and free of mortar and debris.

2. Clean and prepare joint surfaces. Prime joint surfaces unless sealant manufacturer recommends against priming. Do not allow primer to spill or migrate onto adjoining surfaces.
3. Fill sealant joints with specified joint sealant:

    a. Install cylindrical sealant backing beneath the sealant. Where space is insufficient for cylindrical sealant backing, install bond-breaker tape.
    b. Install sealant using only proven installation techniques that ensure that sealant is deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding masonry and matching the contour of adjoining mortar joints.
    c. Install sealant as recommended in writing by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:

        1) Fill joints to a depth equal to joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.

    d. Tool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant from surfaces adjacent to joint.
    e. Sanded Joints: Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Lightly retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint.
    f. Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.

G. Where repointing work precedes cleaning of existing brickwork, allow mortar to harden at least 30 days before beginning cleaning work.

3.5 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, applied by low-pressure spray.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

B. Clean adjacent nonmasonry surfaces. Use detergent and soft brushes or cloths.

C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

D. Remove masking materials, leaving no residues that could trap dirt.

3.6 FIELD QUALITY CONTROL

A. Preservation Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities and assist the City’s representative at the site, including observing progress and quality of portion of the Work completed. Allow Preservation Architect's Project representatives use of scaffolding, as needed, to observe progress and quality of portion of the Work completed.

B. Notify Preservation Architect's Project representatives in advance of times when scaffolding will be relocated. Do not relocate scaffolding until inspectors and Preservation Architect's Project representatives have had reasonable opportunity to make inspections and observations of work areas at scaffold location.

END OF SECTION 04 03 23

AWS welding symbols (distinguishing between shop and field welds), and in accordance with AISC standards. Include all dimensional and geometric information. Weld access hole dimensions shall be provided along with surface profile and finish requirements.

3. Shop and erection drawings shall include connection material specifications and sizes. Erection drawings shall indicate the locations of all slip-critical bolts.
4. Shop and erection drawings shall identify any non-destructive testing to be performed by the fabricator, if any.
5. Provide setting drawings, templates. and directions for installation of anchor bolts and other anchorage.
6. Erection drawings shall identify those joints, or groups of joints, in which a specific assembly order, welding sequence, or other special precautions are required.

B. Welding:

1. Welding Procedures: Submit written welding procedure specifications (WPS's) conforming with AWS D1.1 (and AISC 341 Appendix W if applicable) for review prior to performing any welding. Include an index of all WPS's and identify in the index whether the procedure will be used in the shop, field, or both. The WPS variables shall be within the parameters established by the filler-metal manufacturer. Filler metal manufacturer and manufacturer's electrode identification shall be considered essential variables and shall be identified on each WPS. Include electrode manufacturer's data sheet with each WPS showing recommended ranges and demonstrating that electrodes and electrode-flux combinations meet the requirements for H16 as tested in accordance with AWS A4.3. Do not include welding procedures that do not apply to welds on the project. Submittals containing welding procedures not intended for use on the project will be rejected.
2. Welding Procedure Qualification Records: Where WPS's are not prequalified by AWS D1.1, submit procedure qualification records with WPS's.

C. Manufacturer's Proofs of Compliance for Materials:

1. Certification that materials meet requirements specified. Steel must be identified by the mill using the appropriate ASTM designation. Certified manufacturer's mill analyses and test reports covering chemical and mechanical properties shall be submitted.
2. Steel not properly identified shall be tested to meet the minimum chemical and mechanical requirements of the ASTM standard appropriate for the steel specified.
3. Provide material test reports for bolts, nuts, washers, and shear connectors.

D. Samples: Provide as requested by the Owner's Testing Agency.

1.4 QUALITY ASSURANCE

A. All work shall conform to the 2022 California Building Code.

B. Fabricator and Erector shall have been regularly engaged at least 3 years in the fabrication and erection of structural steel.

C. A certified copy of the mill test on each heat of steel to be supplied shall be submitted to the Project Inspector and reviewed by the Testing Laboratory prior to fabrication. All steel must be identified and accompanied by a certified mill certificate, or testing will be required. The contractor will be responsible for the testing to determine mechanical properties of all structural steel lacking mill test certificates.

D. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Division 1 General Requirements of these Specifications.

1.5 PRODUCT DELIVERY STORAGE AND HANDLING

A. Delivery of materials to be installed under other Sections.

1. Anchor bolts and other anchorage devices which are embedded in cast-in-place, precast/tilt-up concrete, or masonry construction shall be delivered to the project site in time to be installed before the start of cast-in-place concrete or masonry work.
2. Provide setting drawings, templates, and directions for the installation of the anchor bolts and other devices.

B. Storage Materials:

1. Structural steel members which are stored at the project site shall be above ground on platforms, skids or other supports.
2. Steel shall be protected from corrosion.
3. Other materials shall be stored in a weather tight and dry place, until ready for use in the work.
4. Packaged materials shall be stored in their original unbroken package or container.

PART 2 − PRODUCTS

2.1 MATERIALS

A. Steel plates and miscellaneous metals shall conform to ASTM A36, Fy=36 ksi typical except where noted as ASTM A572, Fy=50 ksi.

B. Hollow Structural Steel and Tube Steel shall conform to ASTM A500, Grade B, Fy=46ksi.

C. Machine Bolts shall conform to ASTM A307 typical except where noted as ASTM A325-N, ASTM A325-X, ASTM A325-SC, or ASTM A490-X.

D. Threaded Rods shall conform to ASTM F1554, Grade A36 typical except where noted as ASTM A193, Grade B7 or ASTM A449.

E. Nuts and Washers

1. A307 Bolts and ASTM F1554 Threaded Rods – Nuts shall conform to ASTM A563, Grade A and Washers shall conform to ASTM F844.
2. A325 Bolts and ASTM A193 or ASTM A449 Threaded Rods – Nuts shall conform to ASTM A563 Grade DH and Washers shall conform to ASTM F436.
3. A490 Bolts – Nuts shall conform to ASTM A563 Grade DH and Washers shall conform to ASTM F436.

F. Welded Studs shall Nelson H4L welded studs conforming to ASTM A108 or approved equal.

G. Welding Electrodes shall be E70 series.

H. Primer conforming with Federal Specification TT-P-645A.

I. Hot dip and cold process galvanizing ASTM A123 and ASTM A780.

2.2 SOURCE QUALITY CONTROL

A. Testing Agency shall perform the following:

1. Review mill test certificates and verify that material to be supplied matches the mill certificates and complies with DSA requirements of CBC Section 2203A.1.
2. All steel must be identified and accompanied by a manufacturer's certified mill certificate, or testing will be required. The contractor will be responsible for the testing to determine mechanical properties of all structural steel lacking mill test certificates.
3. All bolts, nuts, washers, and treaded rods and other fasteners must be identified and accompanied by a manufacturer's certified mill certificate, or testing will be required. The contractor will be responsible for the testing to determine mechanical properties of all fasteners lacking mill test

certificates.

PART 3 − EXECUTION

3.1 INSPECTION

A. Survey the base structure before proceeding with erection foundations to support construction and verify the following:

1. Correct location and elevation of bearings and anchor bolts.
2. Absence of other conditions to adversely affect erection of steel.

B. Do not begin erection before corrective measures for unsatisfactory conditions have been agreed upon with the Architect, the corrective measures have been implemented, and the Erector is fully satisfied for correctness.

C. Survey the final erected structural steel frame prior to the application of any other work, reporting any discrepancies from the Contract Documents to the Architect.

3.2 PREPARATION

A. Provide column anchor rods, plate washers, and setting templates for setting anchor bolts as required. Provide 1/8 inch minimum steel plate setting templates for anchor bolts.

B. Supervise setting of anchor bolts and other embedded items required for erection of structural steel. Be responsible for correct bearing of steel and correct location of anchor bolts. Provide necessary shim plates, etc, for levelness.

3.3 ERECTION

A. General Requirements:

1. Erect structural steel in accordance with the CBC and the AISC Specifications for Structural Steel Buildings, and the AISC Code of Standard Practice for Steel Buildings and Bridges.
2. Protect all materials from corrosion and keep free of dirt, grease, and other foreign matter.
3. Ensure steel is plumb, level and in accurate alignment before making final connections.
4. Field corrections of major members will not be permitted without the Engineer's prior approval
5. Provide temporary shoring and bracing members with connections of sufficient strength and stiffness to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds. Structural frame is not

considered self-supporting until completion of structural work, including casting of concrete floor slabs.

B. Column Bases and Bearing Plates:

1. Attached Column Bases and Bearing Plates: Align with wedges or shims.
2. Loose Column Bases and Bearing Plates: Where too heavy to be placed without derrick or crane, set, wedge and shim.
3. Grouting: Grout in accordance with requirements of Concrete, Cast-In-Place Section.

C. Field Assembly:

1. Control all erection procedures and sequences including but not limited to temperature differentials and weld shrinkage.
2. Clean bearing surfaces and surface to be in permanent contact before assembling members.
3. Accurately assemble frames to lines and elevations indicated, within erection tolerances noted. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
4. Ensure assembly is plumb, level and aligned before final connecting.
5. Install all beams and girders with cambers up (except cantilevers).
6. Do not fasten splices of compression members before abutting surfaces comply with AISC bearing requirements.
7. Establish leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
8. Promptly grout beneath column base plates after the structural steel frame or portion has been plumbed and before casting of any slab concrete on metal decks.

D. Bolting:

1. As erection progresses, bolt up work to take care of all dead loads, construction live loads, lateral and wind forces and erection stresses.
2. Unless otherwise noted, erection bolts used in welded construction may be either tightened securely and left in place or removed and the holes filled with plug welds.
3. High Strength Bolting:

    a. Shall be performed in accordance with AISC 360.
    b. Contact surfaces shall be free of oil, paint, lacquer or other coatings.
    c. Install hardened washers per AISC 360 and referenced standards.
    d. Tighten all nuts of slip critical connections using (1) properly calibrated wrenches, (2) by the "Turn-of-Nut" method, or (3) by

the use of a Direct Tension Indicator. Minimum bolt tension as per AISC 360 for each bolt size used. Check wrenches for accuracy of calibration at least once each day.

e. When slip critical bolts have been completely tightened, mark with identifying symbol.

f. Tighten nuts of bolts not designated as slip critical to snug tight condition and ensure all plys of connection are brought into snug contact.

D. Welding

1. Conform to AISC and AWS D1.1 for the details of joints, the technique of welding employed, the appearance and quality of welds made, and the methods used in correcting defective work.
2. Perform welding in accordance with a written WPS which has been reviewed. Provide welders and inspectors with reviewed WPS for the joint being welded.

a. Use equipment that supplies proper current, voltage, etc. and provide suitable meters and means of adjustment for current and voltage.

b. Clean surfaces for rust, paint, and foreign matter of any kind. Remove scale by wire brush, chipping or hammering as required. Before welding thermal cut edges, chip clean and grind to bright metal. Clamp members as required and space and alternate welds to prevent warping or misalignment.

c. For weld joint profiles, meet dimensional requirements and maximum tolerances specified by AWS D1.1 or as specified in approved PQR's. Correct joint fit-up that does not comply using approved procedures and obtain approval by the inspector before welding proceeds.

c. Ensure welds present a uniform surface, free of defects as defined by AWS, and without undercutting or overlapping and free of excessive oxides, gas pockets, and non-metallic inclusions. Make welds with the proper number of beads or passes to secure sound, thoroughly fused joints. Do not exceed maximum layer height and bead width specified in AWS
D1.1. Clean each pass by chipping and wire brushing to remove scale and slag before placing any additional weld material.

e. For highly restrained connections and/or welds, design the welding sequence to minimize distortion of the members and to minimize the buildup of internal stresses.

F. Temporary Bracing: Introduce wherever necessary to provide for all loads to which structure is subjected including erection equipment and its operation. Leave in place until no longer required for safety. Make proper provisions for construction loads, piles of materials, equipment, etc., carried by structural frame

during erection. Contractor shall be solely responsible for frame during erection.

G. Touch-Up Painting:

1. Immediately after steel erection, clean filed welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
2. Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

3.4 CLEANUP

A. After erection thoroughly clean surface of foreign or deleterious matter such as dirt, mud, oil or grease that would impair bonding of fireproofing or concrete.

3.5 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A780.

3.6 QUALITY CONTROL

A. The Owner's Testing Agency will test and inspect in accordance with the AISC requirements and as required, and as follows:

1. Bolting: High strength bolted connections shall be inspected and tested. The inspector shall check the materials, equipment, details of construction, and installation procedure. For slip-critical connections, check bolt tightness on not less than ten percent of bolts selected at random in each high strength bolt connection with a minimum of two bolts per connection. Connections that are not designated slip-critical need not be inspected for bolt tension other than to ensure that the plies of the connected elements have been brought into snug contact. Inspection procedure will be as described in AISC 360.
2. Welding Inspection: Visual inspection by a qualified welding inspector is required for all welding performed in the shop and field, including installation of automatic end-welded shear stud connectors. The minimum requirements for a qualified welding inspector are those for an AWS associate welding inspector (AWI) or senior welding inspector (SWI), as defined in the provisions of AWS B5.1 Standard Qualification of Welding Inspectors, except AWIs may be used under the direct supervision of WIs, on site and available when weld inspection is being conducted. In addition to inspecting the welds, the welding inspector shall check the material (certificates of compliance), welding equipment, details of construction (including fit-up), welder qualifications (Verify welder certifications are valid for process, position, and thickness to be welded), storage of electrodes, and adherence to the WPS. The welding inspector shall

maintain a record of welds inspected, name of welder who performed weld, defects found, and disposition of each defect. Defective welds shall be repaired and the cost of restoring defective welds shall be borne by the contractor.

3. Inspection and Test Reports: The inspector shall furnish the architect, structural engineer, and building official with a report stating that the work has been completed in compliance with AWS 01.1 and the approved project plans and specifications.

B. The Contractor shall:

1. Make no extra charge for any handling of steel required for complete four-sided inspections of members at Engineer's request. It is not anticipated that a complete four-sided inspection of all members will be undertaken. Such inspection will be necessary in case of dispute or uncertainty regarding adherence to Drawings and Specifications.
2. Repair defective welds or flaws, lamellar tearing, and replace defective studs.
3. Pay for retesting of repaired defective welds flaws and studs.
4. Cooperate to the fullest extent to accommodate inspection agency personnel with the on-site testing and inspection procedures.
5. Assume full responsibility and pay for all corrective work.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 − GENERAL

1.1 SUMMARY

A. This Section includes all labor, materials, equipment, operations, or methods listed, mentioned or scheduled on the plans and/or herein specified, including all incidentals necessary and required for completion of work under this Section.

B. Provide and install rough carpentry work shown on the project Drawings, including but not limited to:

1. Wood framing, sheathing, blocking, furring, nailers, backing panels for utilities, miscellaneous wood, connectors and hardware.

1.2 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Special Conditions and Division 1 of these Contract Documents.

B. Document 05 12 00, Structural Steel

1.3 SUBMITTALS

A. Comply with provisions of City Standard Specification, Submittal Procedures.

1.4 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 − PRODUCTS

2.1 MATERIALS

A. Dimension Lumber: surfaced 4 sides, 19% maximum moisture content, manufactured and graded per WWPA grading rules and all pieces grade stamped:

1. Joists, Rafters, Beams, Headers: up to 3x Cedar No 2, 4x Cedar No 1
2. Architectural Trims: Cedar No 2

B. Sheathing

1. Shall be minimum 3/4” marine grade plywood type rated Sturd-1-Floor, Premium ”B” grade veneer with exterior waterproof glue (Exposure 1), span rating 24” on center, species Group 2 or better.

C. Wood Treatment

1. Treat all above ground wood exposed to deterioration by moisture and all wood in contact with concrete, the ground, or fresh water.
2. Lumber, Timbers, Bridge and Mine Ties in ground contact, concrete contact, exposed to moisture or fresh water - Preservative treatment: Pressure-treated with waterborne preservatives, to comply with AWPA Pressure treating standard C2. Minimum net retention shall be .4 pounds per cubic feet.
3. Pressure-treated lumber to bear approved quality mark by an accredited ALSC third party inspection agency to assure treatment is in conformance with appropriate AWPA standards.
4. Handling, fabrication, field treating and disposal of cutoffs shall be in conformance with AWPA M4. Field treat with Copper Naphthenate solution with preservative concentration of no less than 2% copper metal.
5. Kiln dry after treatment to 19% maximum moisture content for lumber, and 15% for plywood.
6. Precautions for wood preservatives and treatment:
    a. Post “Consumer Information Sheet: and “Material Safety Data Sheet: as required by California Proposition 65.
    b. Store treated lumber and plywood only within a secure fenced area.
    c. Take all possible steps to prevent unlawful use or disposal. Take all possible steps to insure that treated wood scraps are not burned.
    d. Build an approved “Dip Tank” for flood coating and treating cut ends of wood members.
    e. Keep wood preservative and dip tank in a cool and ventilated locked enclosure when not in use.

D. Fasteners

1. All nailing for structural work shall be in conformance with CBC Table 23-II-B-1 - Nailing Schedule. All nails exposed to earth, pressure treated lumber or weather shall be hot dipped galvanized or shall be of stainless steel.
2. Pneumatically driven nails will be allowed only upon submission of ICBO reports approving the nails for the use intended and with an equivalent load capacity as for the common wire nail specified. Pneumatically driven nails shall be driven flush with the surface of the wood.
3. All machine bolts shall conform to the requirements of ASTM Standard A 307, Grade A. All machine bolts, nuts and washers exposed to earth, pressure treated lumber or weather in the completed structure shall be hot dipped galvanized.
4. Bolts shall be installed with cut washers under the heads and/or nuts where the head or nut would otherwise bear on the wood.
5. All connectors and fasteners exposed to earth, pressure treated lumber or weather in the completed structure or treated lumber shall be hot dip galvanized after fabrication or Type 304 and 316 stainless steel. Never mix galvanized steel with stainless steel in the same connection to prevent physical contact of dissimilar metals.

E. Metal Framing Devices

1. Proprietary framing devices - Manufactured by Simpson Strong-Tie Company or approved equal, installed in conformance with the manufacturer's specifications. All specified fasteners must be installed. All such fasteners shall be of the largest size and quantity specified in the manufacturers published schedules, unless noted otherwise. All connectors and fasteners exposed to weather shall be hot dip galvanized after fabrication.
2. Fabricated Metal Devices: per Document 05 12 00, Structural Steel.

PART 3 − EXECUTION

3.1 INSTALLATION

A. Construction methods and project safety: the contract documents represent the finished structure and do not indicate methods, procedures or sequence of construction. Take necessary precautions to maintain and ensure the integrity of the structure during construction. Contractor shall design, construct and maintain all safety devices, including shoring and bracing, and solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations.

B. Wood framing: Comply with recommendations of CBC Chapter 23, Division IV – Conventional Light Frame Construction, and NDS National Design Specifications for Wood Construction.

C. Plywood: Comply with recommendations of APA Design and Construction Guide - Residential and Commercial. Space panel ends and edges with 1/8” minimum gap. Where wet or humid conditions prevail, double this spacing.

D. Provide nailers, blocking and grounds where required. Set work plumb, level and accurately cut. Fire and draft blocks shall be as specified per CBC Section 708.

E. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with other work.

F. Comply with manufacturer's requirements for cutting, handling, fastening and working with treated materials.

END OF SECTION

SECTION 06 40 13 - EXTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Shop Drawings.

B. Quality Standard: AWI, AWMAC, and WI's "Architectural Woodwork Standards."

C. Forest Certification: Provide woodwork produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

PART 2 - PRODUCTS

2.1 MATERIALS

A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.

B. Softwood Plywood: DOC PS 1.

C. Preservative Treatment: Comply with WDMA I.S.4 for items indicated to receive water-repellent preservative treatment.

D. Fasteners for Exterior Woodwork:

1. Nails: hot-dip galvanized or stainless steel.
2. Screws: hot-dip galvanized or stainless steel.

2.2 EXTERIOR FINISH CARPENTRY

A. Exterior Lumber Trim: Smooth-textured, Clear All Heart redwood, or Clear yellow cedar.

1. Maximum Moisture Content: 15 percent.

B. Complete fabrication to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

D. Exterior Standing and Running Trim: Made from all heart redwood or yellow cedar.

E. Exterior Ornamental Work: Made from yellow cedar or all heart redwood.

F. Shop prime woodwork for opaque finish with one coat of specified wood primer.

G. Backprime with one coat of sealer or primer, compatible with finish coats. Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install woodwork to comply with referenced quality standard for grade specified.

B. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Fasten with countersunk concealed fasteners and blind nailing. Use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork.

E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

END OF SECTION

SECTION 064085 - WOOD RESTORATION AND REHABILITATION

PART 1 - GENERAL

1.1 SUMMARY

A. Principal Work in this Section: Clean, refinish, and restore woodwork. The Work includes:
   1. Cleaning of items as directed.
   2. Cleaning and refinishing of items as directed.
   3. Repair damage; fill holes and losses; replace missing elements.
   4. Re-finish woodwork to match existing.
   5. The work described applies to items noted on the drawings or per direction, such as window, and door trim.

B. Present Condition:
   1. Locations of existing woodwork are noted on Drawings. The Drawings do not, however, fully describe the condition or extent of damage of each individual wood artifact. Contractor is responsible for field verifying, repairing, and refinishing all woodwork to remain or be reinstalled. Contractor to inspect site conditions as well as woodwork held in storage prior to bidding.

C. Related Sections: Documents affecting the work of this Section include, but are not necessarily limited to, the Sections listed below:
   1. Section 06 10 00 Rough Carpentry
   2. Section 06 40 13 Exterior Architectural Woodwork
   3. Section 09 91 00 Painting
   4. Section 09 91 10 Preparation of Historic Wood and Metal Surfaces for Painting

1.2 QUALITY ASSURANCE

A. Restoration Specialist: Contractor shall have not less than ten (10) years successful experience in comparable woodworking, and wood restoration. Employees assigned to the Work must be skilled in the processes, and operations indicated.

B. Codes and Standards:
   1. Adhere to applicable local, State and Federal laws, and requirements.
   2. Contractor to require observance of applicable federal and state agency, industry, and manufacturer recommended safety regulations, and precautions.

C. Performance Standards: Work shall match and blend seamlessly, and unobtrusively with adjacent finishes.

D. Mock-ups: Contractor to prepare mock-up of repair and refinishing for each material required:
   1. Location and size of mock-ups to be determined by approved mock-up proposal.
   2. Mock-ups to demonstrate the full range of work required for each material. Provide multiple mock-ups where necessary to demonstrate the range of work.
   3. Mock-ups to test multiple stain colors or finishes, as directed by Owner.
   4. Contractor to consult with manufacturer's field representative prior to coating mock-up.
   5. Contractor to photograph before and after conditions, and document procedures and products used (see Submittals).
   6. Completed and approved mock-ups shall serve as the minimum standard by which all subsequent work in this Section will be judged. Conformance with mock-ups, however, does not relieve the Contractor of responsibility for insuring that field production matches and blends seamlessly, and unobtrusively with existing.
   7. Approved mock-ups shall be retained and protected for the duration of the work.

8. Do not begin work until mock-ups are approved by Owner.

1.3 SUBMITTALS

A. Statement of Qualifications: List of recently completed projects including project name, location, name of Owner, and description of work and products used. Certification that contractor/applicator is experienced in the application of the specified products.

B. Product Data: Provide manufacturer's current product data sheets on all products to be used for the Work.

C. Removals Plan: Submit removals plan complying with requirements stipulated in Section 024291.

D. Protection Plan: Describe methods for protecting surrounding areas, surfaces, and personnel during the work from contact with strippers, stains, coatings, or other potential sources of damage.

E. Schedule of Work: Submit schedule of work, including all required mock-ups, submittals, and execution steps.

F. Mock-up Proposal: Submit detailed proposal for mock-ups indicating locations and physical extent of mock-ups, proposed restoration and cleaning techniques, and proposed products.

G. Mock-up Documentation Submittals: Contractor shall document, in writing, the procedures used in the preparation of the mockups. This documentation will include the following information:
   1. Cleaning, staining and/or refinishing materials used including concentrations, number of applications, surface preparation method, order, and duration of applications.
   2. Equipment used.
   3. Accessory materials used.
   4. Waste disposal requirements.
   5. Photographs: Contractor to provide digital photographs documenting "before" and "after" conditions. Provide close-up detail photographs, as well as overall views.

H. Samples: Samples of replacement wood described in this Section will be required for approval before proceeding with the remainder of the Work. Samples to have specified finish.

I. Shop Drawings: Shop drawings for all newly fabricated wood and for existing elements to be removed and installed, indicating dimensions, and details of attachment.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packages with labels clearly identifying product name and manufacturer.

B. Storage and Handling: Store containers upright in a cool, dry, well-ventilated place, out of the sun. Store away from all other chemicals and potential sources of contamination. Keep lights, fire, sparks, and heat away from containers. Do not drop onto or slide across sharp object. Keep containers tightly closed when not in use. Store and handle materials in accordance with manufacturer's instructions.

1.5 JOB CONDITIONS

A. Risks: It should be noted that there are inherent risks and health hazards involved with the use of wood finishing chemicals. It will be the responsibility of the Contractor to ensure that safety precautions are taken, that respirators with chemical cartridge filters meeting NIOSH and MSHA regulations TC23C are worn when appropriate, as well as solvent resistant gloves and aprons. It shall also be the responsibility of the Contractor to inform all personnel of the risks involved in the work and to make available to them the Material Safety Data Sheets for all products in use, per OSHA regulations.

B. Historic Building-Required Care:
   1. Building materials and components shall be considered very fragile and must be dismantled, removed, worked-on, and transported, and in general, handled with special care.
   2. Costs of such repair and restoration may be significant and shall be borne by Contractor.
   3. Protection of existing materials, surfaces, and finishes is of great importance.

C. Environmental Conditions:
   1. Surface and air temperatures must be a minimum of 40 degrees F.
   2. Area to be properly ventilated.
   3. Work area to be protected from pedestrians.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Materials shall conform to the following requirements and shall be new, of the highest grade, free from defects, and of recent manufacture. Alternate materials and procedures are to be used only with the approval of Owner and are to match performance sample.

B. Glue: Acceptable glues for the restoration of the woodwork include aliphatic emulsion, casein glue, polyvinyl acetate (PVA) emulsion, and synthetic joinery grade glues.

C. TSP: Tri-sodium phosphate, any name brand.

D. Paint and Varnish Remover: Should be proven effective in removing all existing finish. Citristrip, non-methylene chloride based stripper from Wm. Barr Branded Sales (800/235-3546).. "Nu-Tec" stripper from Nu-Tec Ind. Chew Mfg. Inc. / Bay City, Michigan 48706; "Master Strip extra thick," distributed by McBride Chemical, Glendale, CA, or equal. Caustic Soda-based removers not permitted.

E. Filler: Filler acceptable for use include "Jasco," "Mohawk" or Ren-Weld carvable wood epoxy, Liquid Wood® or Wood Epox® by Abatron, Inc., or other filler capable of being color matched to wood surface color.

F. New or Replacement Materials: Missing or reproduced parts and components must be fabricated of dried lumber of correct moisture content. Match wood genus and species with lumber cut in matching grain and pattern for each type of wood artifact.

G. Tools: Tools required include both soft and stiff bristle brushes, copper or steel bristle brushes, medium and fine steel wool, medium and fine sandpaper, syringes, spatulas, screwdrivers, pry bars, respiratory protection masks with chemical cartridges meeting NIOSH and MSHA regulations TC23C, cotton rags, alcohol heat lamp with small burn-in knife, chisels, and solvent proof gloves, and other tools as deemed necessary by the Contractor.

PART 3 - EXECUTION

3.1 GENERAL

A. Contractor shall note that the wood elements are old, valuable, and inherently fragile. Great care must be exercised throughout all phases of this Work to protect woodwork, as well as adjacent walls and floors.

B. On-Site Work: Where items of historic fabric are to be renovated on-site, work to be executed in clean, well-ventilated work area, protected from other areas of the project.

C. Off-Site Work: Where items are to be renovated off-site, follow requirements of Section 024291, "Removal and Salvage of Historic Construction Materials."

D. Preparation:
   1. Remove all nails, screws, or other protruding objects.
   2. Remove all signs or other extraneous objects. Label and store as directed by Owner.

3.2 TREATMENT PROCESS

A. Removal of Previous Finishes and Refinishing:
   1. Remove all finishes and stain from surface by applying chemical stripper, per manufacturer's printed instructions. Remove residue of strippers, varnish, and stain from surface using medium coarse steel wool and flexible spatula.
   2. Neutralize stripped surface with TSP/water mixture using nylon brush.
   3. Allow the newly stripped surfaces to dry at least 24 hours before starting the sanding process.
   4. Sand all surfaces using 100 grit garnet sandpaper and then 220 grit garnet sandpaper. All sanding shall be done with the grain of the wood. Cross grain sanding is not acceptable. Dust surfaces with a soft bristle brush and then lightly wipe surfaces with a tack cloth.
   5. Repair any wood damage per Article 3.4, "Wood Repair."
   6. Brush-on stain with soft bristle brush, allow to dry 30 minutes or as recommended by manufacturer, and then wipe off excess. Follow manufacturer's printed directions.
   7. Allow surface to dry thoroughly for 12 hours.
   8. Apply the first coat of primer to surfaces, and allow to dry for 24 hours.
   9. Lightly sand primed surfaces using 220 grit sandpaper, and wipe with a tack cloth.
   10. Apply the finish coats of paint.

3.3 REMOVAL OF EXISTING FINISH

A. Removal of existing finish for wood surfaces:
   1. All exposed surfaces shall be inspected for foreign material such as thick paint, chewing gum or other thick deposits. Any such material shall be removed mechanically with hand scrapping, no machine sanding allowed.
   2. Stripping shall be carried out in a controlled manner. In situ work shall be masked and protected to ensure that adjacent surfaces are not marred or damaged by the treatment of the woodwork.
   3. Strippers shall be used in accordance with manufacturer's directions.

3.4 WOOD REPAIR

A. Procedures:
   1. See related Sections for wood repair.

3.5 REFINISHING OF WOODWORK

A. General:

1. It is the aim of this treatment that all woodwork be given a consistent treatment with materials and procedures to ensure a uniform final appearance which matches approved field sample. Any deviation from specified materials or procedures must be approved by Owner.
2. All materials and procedures used must conform to all pertinent regulations. It shall be the responsibility of the Contractor to identify all applicable regulations and to guarantee that all materials and procedures are in accordance with said regulations.
3. It shall be the responsibility of Contractor to test materials and procedures called for in specifications to guarantee that all necessary steps are taken, that stripping compounds are adequately neutralized, that proper application and drying times are observed, that there are no inherent chemical incompatibilities with the materials called for, and that both the conditions and the procedures are appropriate for completion of Work.
4. All work shall be protected and kept clean during the finishing process to guarantee a finish of the highest quality. Only a finish of uniform color matching the performance sample and a smooth finish free of dust, pinholes, drips or sag marks will be accepted.
5. All work must be protected following the finishing operations. In situ work must be covered with plastic or brown paper during other procedures in those spaces to prevent drips, spills, or other accidents.

B. Procedure:
1. Surface appearance should be smooth and even. Sanding of surfaces with at least 220 grit garnet paper should be carried out. Any black iron marks should be removed with oxalic acid, followed by neutralizing with borax, alternatively surfaces may be washed with non-malt vinegar.
2. Grain shall be filled as follows only where larger than 1/16". Thin the paste wood filler as necessary with paint thinner. Apply with a brush, working it into the grain, brushing with the grain. Let the filler set up for a few minutes, per manufacturer's instructions, then wipe off the excess, rubbing across the grain. Allow filler to dry for at least 48 hours. Lightly fine sand before proceeding.
3. Prior to finishing, all woodwork shall be protected from grease, oil, or finger marks. A final inspection shall be carried out to verify that all fills are level and smooth surfaces shall be lightly fine sanded, and wiped with a solvent to clean them, if necessary.
4. Application of the Finish:
   a. For in situ work, all adjacent surfaces must be masked and protected from brush marks, spills, and runs.
   b. Personnel to wear solvent resistant gloves and respiratory masks with chemical cartridge filters.
   c. All work is to be delivered with a smooth finish free of dust marks and scratches.

END SECTION

SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data**,** Samples, and ICC-ES evaluation reports.

B. Warranties: Provide standard manufacturer's written warranty, signed by manufacturer agreeing to promptly repair or replace asphalt shingles that fail in materials within 30 years from date of Substantial Completion, prorated, with first three years nonprorated.

PART 2 - PRODUCTS

2.1 ASPHALT SHINGLES

A. Fire-Resistance Characteristics: ASTM E 108 or UL 790, Class A. Identify products with appropriate markings of testing and inspecting agency acceptable to authorities having jurisdiction.

B. Fiberglass Shingles: ASTM D 3462.

1. Multitab-Strip Asphalt Shingles: Mineral-granule surfaced and self-sealing. Four tabs, regularly spaced with straight cut butt edge.

a. Manufacturers: One of the following:

1) CertainTeed Corporation.
2) GAF Materials Corporation.
3) Elk Premium Building Products, Inc.; an ElkCorp company.
4) Or Approved Equal.

2. Color: Manufacturer’s best match to weathered cedar shingles.

2.2 ACCESSORIES

A. Self-Adhering Sheet Underlayment: ASTM D 1970, SBS-modified asphalt; mineral-granule or slip-resisting-polyethylene surfaced; with release paper backing; cold applied.

B. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

C. Roofing Nails: Stainless-steel, or hot-dip galvanized-steel shingle nails, minimum 0.120-inch (3-mm) diameter, of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing.

D. Sheet Metal Flashing and Trim: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."

1. Sheet Metal: Zinc-tin alloy-coated steel.
2. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual."
3. Drip Edge: Formed sheet metal with at least a 2-inch (50-mm) roof deck flange and a 1-1/2-inch (38-mm) fascia flange with a 3/8-inch (9.6-mm) drip at lower edge.
4. Open-Valley Flashing: Fabricate with 1-inch- (25-mm-) high, inverted-V profile at center of valley and equal flange widths of **10 inches (250 mm)**

2.3 INSTALLATION

A. Comply with recommendations in ARMA's "Residential Asphalt Roofing Manual" and with asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 24 inches (600 mm) inside exterior wall line.

C. Apply self-adhering sheet underlayment at valleys extending 18 inches (450 mm) on each side.

D. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment.

E. Install valleys complying with NRCA instructions. Construct sheet metal open valleys.

F. Install metal flashings to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" and according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

G. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with 5-inch (125-mm) 1/2-tab offset pattern at succeeding courses, maintaining uniform exposure.

END OF SECTION 073113

SECTION 073129 - WOOD SHINGLES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data**,** Samples, and ICC-ES evaluation reports.

PART 2 - PRODUCTS

2.1 SHINGLES

A. Fire-Test-Exposure Classification: Class B; UL 790 or ASTM E 108 with ASTM D 2898, for application and existing roof slopes indicated.

B. Grading Standard for Wood Shingles: CSSB's "Grading Rules for Certigrade Red Cedar Shingles."

C. Cedar Roof Shingles: No. 1 grade, smooth sawn, 16 inches (405 mm) long; 0.40 inch (10 mm) thick at butt, fire-retardant treated.

1. Manufacturers:

a. Cedar Valley Shingle Systems, Inc.
b. Shakertown 1992, Inc.
c. Or Approved Equal.

2. Butt Style: Straight line.

2.2 ACCESSORIES

A. Gypsum based rated roof sheathing:

1. Manufacturers: One of the following:
a. CertainTeed Corporation
b. Georgia Pacific
c. National Gypsum
d. US Gypsum

B. Self-Adhering Sheet Underlayment: ASTM D 1970, SBS-modified asphalt; mineral-granule or slip-resisting-polyethylene surfaced; with release paper backing; cold applied.

1. Manufacturers: One of the following:

a. ALCO-NVC Inc.
b. Atlas Roofing Corporation.

c. Carlisle Coatings & Waterproofing, Inc.
d. CertainTeed Corporation.
e. GAF Materials Corporation.
f. Henry Company.
g. IKO.
h. Johns Manville.
i. Owens Corning.

C. Flexible Ridge Vent: Compression-resisting, three-dimensional, open-nylon or polyester-mat filter bonded to a nonwoven, nonwicking, geotextile fabric cover.

1. Manufacturers: One of the following:

a. GAF Materials Corporation.
b. Keene Building Products.
c. Obdyke, Benjamin Incorporated.
d. TAMKO Roofing Products, Inc.

D. Roofing Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel nails, of sufficient length to penetrate 3/4 inch (19 mm) into sheathing.

1. Use shingle-type nails for wood shingles.
2. Where nails are in contact with metal flashing, use nails made from metal specified in Section 076200 "Sheet Metal Flashing and Trim" for fastening metal flashing.

E. Sheet Metal Flashing and Trim: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."

1. Sheet Metal: Zinc-tin alloy-coated steel.
2. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual."
3. Drip Edge: Formed sheet metal with at least a 2-inch (50-mm) roof deck flange and a 1-1/2-inch (38-mm) fascia flange with a 3/8-inch (9.6-mm) drip at lower edge.
4. Open-Valley Flashing: Fabricate with 1-inch- (25-mm-) high, inverted-V profile at center of valley and equal flange widths of 10 inches (250 mm)

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install rated gypsum board roof sheathing over existing plywood wood sheathing which will be the basis for the required Class A roof assembly with wood shingle roofing.

B. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 36 inches (914 mm) inside exterior wall line.

C. Install single-layer felt underlayment on roof deck not covered by self-adhering sheet underlayment.

D. Install metal flashings and other sheet metal to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."

E. Install ventilation mat over roofing felt and self-adhering sheet underlayment, held in place per manufacturer's recommendations.

F. Install wood-shingle roofing according to manufacturer's written instructions and to recommendations in CSSB's "New Roof Construction Manual" and NRCA's "The NRCA Roofing and Waterproofing Manual."

G. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 24 inches (600 mm) inside exterior wall line.

H. Apply self-adhering sheet underlayment at valleys extending 18 inches (450 mm) on each side.

I. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment.

J. Install valleys complying with NRCA instructions. Construct sheet metal open valleys.

K. Install metal flashings to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" and according to recommendations in CSSB's "New Roof Construction Manual" and cedar shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

END OF SECTION 073129

SECTION 07 46 00 - DRAINAGE AND VENTILATION MAT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Drainage and Ventilation Mat.

1.2 RELATED SECTIONS

A. Section 07 31 29 – Wood Shingles and Shakes

1.3 REFERENCES

ASTM C 165-00: Standard Test Method for Measuring Compressive Properties of Thermal Insulations
ASTM D 6818: Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products
ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials

1.4 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 2 years production of similar products.

B. Installer Qualifications: Experience with installation of similar products.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

1. Product indicated on Drawings or a comparable product of one of the following:

A. Acceptable Manufacturers:
   1. Benjamin Obdyke Incorporated; 400 Babylon Road, Suite A · Horsham, PA 19044 · Toll Free: (877) 647-8368 · Fax: (215) 672-5204; Sales: (800) 523-5261· Fax: (215) 672-3731; Web: www.benjaminobdyke.com
   2. Keene Building Products; PO Box 241353, Mayfield Heights, Ohio 44124. Toll Free Tel: (877) 514-5336, Tel: (440) 605-1020. Fax: (440) 605-1120. Email: info@keeneBuilding.com. Web: https://www.keenebuilding.com.
   3. Or Approved Equal

2.2 DRAINAGE AND VENTILATION MAT

A. Drainage and Ventilation Mat: Randomly oriented geometric patterned drainage and ventilation mat designed to eliminate moisture and moisture vapor in wood roofing applications.

B. Product
1. Physical Characteristics:
a. 0.277 inches (7.04 mm) to 0.30 inches (7.6 mm) thick.
b. 9.9 oz/sq. yd. (336 g/sq m) total weight.
c. 39.37 inches (1m) to 48 inches (122 cm) wide.
d. 60 feet (18.3 m) to 61.5 feet (18.75 m) roll length.
2. Performance:
a. Drainage of liquid moisture and ventilation between sheathing and exterior veneer.
3. Material: UV stabilized nylon.
a. Class-A flame spread per ASTM E84.
b. Hydrophobic compound.
c. Resistant to chemicals.
d. Does not support mold growth.

2.3 ACCESSORIES

A. Provide waterproofing membrane, flashing and fasteners required for a complete functional drainage assembly.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 DRAINAGE MAT INSTALLATION

A. Cedar Shingle Installation
a. Inspect decking for installation for rated assembly installation
b. Install 30lb (14kg) roofing felt over entire roof deck. Extend felt 1/4" (6.4mm) beyond edge of roof deck. Overlap layers at least 4” (102mm) working toward the ridge.
c. Tack down underlayment with 1 tack (or nail) approximately every 3 square feet.
d. Install underlayment with dimples down to present the flat side as the nailing surface.

e. Butt each course of underlayment against previous course. Do not overlap layers of underlayment.
f. Work from fascia to ridge while installing shingles to avoid walking directly on underlayment.
g. Install cedar shingles per manufacturer's instructions. Use a nail of sufficient length to allow for ¾" (19.1mm) penetration into sheathing. Allow 1/4" (6.4mm) for underlayment thickness.

END OF SECTION

SECTION 075200 - MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Shop Drawings of tapered insulation and ICC-ES evaluation reports for components of membrane roofing system.

B. Warranties: Manufacturer's standard or customized form, without monetary limitation, signed by roofing manufacturer agreeing to repair leaks due to defects in materials or workmanship for period of 30 years.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Energy Performance: Initial Solar Reflectance not less than 0.70 and Thermal Emittance not less than 0.75 when tested according to CRRC-1.

B. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980.

C. Exterior Fire-Test Exposure: ASTM E 108, Class A.

2.2 ROOFING MATERIALS

A. SBS-Modified Bituminous Membrane Roofing:

1. Manufacturers: One of the following:
   a. CertainTeed Corp.
   b. Firestone Building Products.
   c. GAF Materials Corporation.
   d. Johns Manville.
   e. TAMKO Building Products, Inc.
   f. Tremco Incorporated.
   g. Or Approved Equal.

B. Roofing Membrane Sheet: ASTM D 6162, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with a combination of polyester fabric and glass fibers**)**; smooth surfaced.

C. Granule-Surface Roofing Membrane Cap Sheet: ASTM D 6162, Grade G, Type I or II, SBS-modified asphalt sheet (reinforced with a combination of polyester fabric and glass fibers); granular surfaced.

D. Base Sheet: ASTM D 4601, Type II, SBS-modified, asphalt-impregnated and -coated, glass-fiber-reinforced sheet.

E. Glass-Fiber Base-Ply Sheet: ASTM D 2178, Type IV, asphalt-impregnated, glass-fiber felt.

F. Auxiliary Materials: Recommended by roofing system manufacturer for intended use and as follows:
1. Base Flashing: Manufacturer's standard SBS-modified bituminous sheet, mineral-granule surfaced.
2. Roofing Asphalt: ASTM D 312, Type IV.
3. Skid-resistant roof protection pads: Manufacturer's standard for maintenance paths.

2.3 ROOFING INSULATION

A. Fabricate tapered insulation with slope of 1/4 inch per 12 inches (1:48) unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install substrate board with long joints continuous and perpendicular to roof slopes with end joints staggered. Tightly butt substrate boards together.

B. Install each layer of insulation in a solid mopping of hot asphalt. Prime surface of concrete deck with asphalt primer allow primer to dry before mopping in and applying first layer.

C. Mechanically fasten each layer of insulation with at least one fastener for each 4 sq. ft. (0.38 sq. m) and at least two fasteners per board.

D. Install cover boards over insulation with long joints continuous and perpendicular to roof slopes with end joints staggered. Loosely butt cover boards together and fasten to deck.

E. Install and secure cant strips and nailer strips.

F. Install roofing membrane system according to roofing system manufacturer's written instructions, applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing," and as follows:

1. Deck Type: N (nailable).
2. Adhering Method: M (mopped).
3. Base Sheet: One.
4. Number of Glass-Fiber Base-Ply Sheets: One.
5. Number of SBS-Modified Asphalt Sheets: **Two**.
6. Surfacing Type: M (mineral-granule-surfaced cap sheet).

G. Maintain uniform side and staggered end laps. Bond and seal laps, leaving no voids.

H. Flashing: Extend 8 inches (200 mm) above roof and 4 inches (100 mm) onto roof and secure to substrate.

I. Skid-resistant roof protection pads: Manufacturer's standard for maintenance paths shall be adhered to roofing surface per manufacturer’s recommendations.

END OF SECTION 075200

SECTION 076100 - SHEET METAL ROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data, Shop Drawings.

B. Comply with SMACNA's "Architectural Sheet Metal Manual" unless otherwise indicated.

C. Warranties: Standard form in which roofing Installer agrees to repair or replace sheet metal roofing that fails in materials or workmanship within five years from date of Substantial Completion.

D. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 099000 – Painting and Coating
   2. Section 099110 – Preparation of Historic Wood and Metal Surfaces for Painting

PART 2 - PRODUCTS

2.1 ROOFING SHEET METALS

A. Metallic-Coated Steel Sheet: Galvanized structural-steel sheet, ASTM A 653/A 653M, G90 (Z275); any replacement sheet metal pans for the flat seam roof are to match the nominal thickness of existing.

   1. Finish: All exposed surfaces to be prepared, primed, and painted to match color and finish of existing sheet metal after seams are sealed or soldered.

   2. Field-Applied Finish: Manufacturer's standard waterborne acrylic emulsion paint primer and finish coat.

2.2 ACCESSORIES

A. Felt Underlayment: ASTM D 226, Type II (No. 30), asphalt-saturated organic felts.

B. Self-Adhering Sheet Underlayment, High Temperature: Butyl or SBS-modified asphalt; slip-resisting-polyethylene surfaced; with release paper backing; cold applied. Stable after testing at 240 deg F (116 deg C) and passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.

1. Products: One of the following:

    a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
    b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.
    c. Henry Company; Blueskin PE200 HT.
    d. Metal-Fab Manufacturing, LLC; MetShield.
    e. Owens Corning; WeatherLock Metal High-Temperature Underlayment.
    f. Or Approved Equal.

C. Slip Sheet: Building paper, 3-lb/100 sq. ft. (0.16-kg/sq. m) minimum, rosin sized.

D. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners.

1. Exposed Fasteners: Paint heads to match the finish color of sheet metal roofing, flashing or trim.
2. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
3. Fasteners for Metallic-Coated Steel Sheet: Hot-dip galvanized steel or Series 300 stainless steel.

E. Solder for Zinc-Tin Alloy-Coated Steel: ASTM B 32, 100 percent tin.

F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Metal Accessories: Matching sheet metal roofing in finish and material required for a complete weathertight roofing system, including clips.

2.3 FABRICATION

A. Fabricate sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of installation indicated.

1. Flat-Seam Roofing: Form flat-seam pans from metal sheets to match size of existing roofing pans with 1/2-inch (13-mm) notched and folded edges.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Remove damaged pan being careful to not damage adjacent pans that are to remain in place.

B. Clean all adjacent seams in preparation for installation of replacement pan.

C. Verify existing roofing felt is still functionally intact, install replacement as needed by ship-lapping new felt to existing with appropriate horizontal and vertical laps

D. Apply slip sheet over underlayment before installing metal roof panel(s).

E. Zinc-Tin Alloy-Coated Steel Roofing: For roofing with 3:12 slopes or less, paint underside of shop-coated, zinc-tin alloy-coated steel, before installation, with primer, applied at a dry film thickness of not less than 2.5 mils (0.06 mm).

F. Install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder and sealant. Fold back sheet metal to form a hem on concealed side of exposed edges unless otherwise indicated.

1. Install cleats to hold sheet metal panels in position. Attach each cleat with two fasteners to prevent rotation.
2. Nail cleats not more than 12 inches (300 mm) o.c. Bend tabs over nails.

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin the seam edges to be joined.
1. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

H. Seal joints as shown and as required for leakproof construction. Provide low-slope transverse seams using cleats where backup of moisture may occur.

END OF SECTION 076100

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

C. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 SHEET METAL

A. Galvanized Steel: ASTM A525, ASTM A361 with minimum 1.25 (377 g/sq m) ounces per square foot of zinc coating meeting ASTM A525, ASTM A446, and ASTM A361.

1. Finish: All exposed surfaces to be prepared, primed, and painted to match color and finish of existing sheet metal.

2.2 FLASHING AND TRIM

A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

2.3 ACCESSORIES

A. Felt Underlayment: ASTM D 226, Type II (No. 30), asphalt-saturated organic felts.

B. Self-Adhering Sheet Underlayment, High Temperature: Butyl or SBS-modified asphalt; slip-resisting-polyethylene surfaced; with release paper backing; cold applied. Stable after testing at 240 deg F (116 deg C) and passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.

1. Products: One of the following:

a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.

c. Henry Company; Blueskin PE200 HT.
d. Metal-Fab Manufacturing, LLC; MetShield.
e. Owens Corning; WeatherLock Metal High-Temperature Underlayment.
f. Or Approved Equal.

C. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners.

1. Exposed Fasteners: Paint heads to match the finish color of sheet metal roofing, flashing or trim.
2. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
3. Fasteners for Metallic-Coated Steel Sheet: Hot-dip galvanized steel or Series 300 stainless steel.

D. Solder for Zinc-Tin Alloy-Coated Steel: ASTM B 32, 100 percent tin.

E. Butyl Sealant: ASTM C 1311, solvent-release butyl rubber sealant.

F. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.4 FABRICATION

A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.

B. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

C. Fabricate non-moving seams in sheet metal with flat-lock seams.

D. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pre-tinned surface would show in finished Work.

1. Do not pre-tin zinc-tin alloy-coated stainless steel.
2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

E. Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.

END OF SECTION 076200

SECTION 077200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data

B. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

C. Coordinate installation of sheet metal accessories and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Galvanized Steel: ASTM A525, ASTM A361 with minimum 1.25 (377 g/sq m) ounces per square foot of zinc coating meeting ASTM A525, ASTM A446, and ASTM A361.

1. Finish: All exposed surfaces to be prepared, primed, and painted to match color of adjacent roofing surface, final color to be selected from samples.

2.2 ROOF ACCESSORIES

A. Pitch Pans: Fabricate from 0.022-inch- (0.55-mm-) thick, metallic-coated steel with welded or sealed mechanical corner joints.
1. Basis-of-Design Product: Flashing Kings, Inc. or a comparable product of one of the following:
   a. Active Ventilation Products
   b. Or Equal.

2. Provide units with base profile coordinated with roof thickness and roof deck slope.
3. Finish: Prime painted.

B. Attic Vents: Manufacturer's standard unit fabricated from the following materials, with manufacturer's standard welded or sealed mechanical joints, and integral base flange:

1. Basis of Design: O’Hagin Low profile (tapered) wood shake/shingle vent or a comparable product of one of the following:

a. Tamco –Thompson Architectural Metals Company
b. Or Comparable Equal.

2. Type: Low-profile
3. Material: Metallic-coated steel
4. Finish: Prime painted.
5. Provide manufacturer's standard bird screens, that maintains the required net free area.

C. Wall mounted, louvered, and screened attic vents

1. Material: Metallic-coated steel

2. Finish: Primed prior to installation, and painted to match adjacent surface.

D. Gutter Debris Screen: Manufacturer's standard unit fabricated from the following materials, with manufacturer's standard welded or sealed mechanical joints, and integral flanges:

1. Basis of Design: Tamco –Thompson Architectural Metals Company drop-in gutter guard or a comparable product of one of the following:
   a. Gutter Supply
   b. E-Z Gutter
   c. Or Comparable Equal.

2. Type: Low-profile, drop-in
3. Material: Metallic-coated steel

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation: Unless otherwise indicated, install roof accessory items according to construction details of NRCA's "Roofing and Waterproofing Manual." Coordinate with installation of roof deck, vapor barriers, roof insulation, roofing, and flashing to ensure combined elements are secure, waterproof, and weathertight.

END OF SECTION 077200

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (4.4 deg C).

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Low-Emitting Materials:

1. Exterior reactive sealants shall have a VOC content of not more than 50 g/L or 4 percent by weight, whichever is greater.
2. Other exterior caulks and sealants shall have a VOC content of not more than 30 g/L or 2 percent by weight, whichever is greater.

B. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.

C. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:

1. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT.

2. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and for Use NT.

2.2 MISCELLANEOUS MATERIALS

A. Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

D. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 1193.

B. Install sealant backings to support sealants during application and to produce cross-sectional shapes and depths of installed sealants that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

END OF SECTION 079200

SECTION 099110
PREPARATION OF HISTORIC WOOD AND METAL SURFACES FOR PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Preparation of historic wood and metal surfaces for painting.

B. Drawings and general provisions of the Contract, including General and supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.02 REFERENCES

A. ACGIH - American Conference of Governmental Industrial Hygienists
1. 02 - Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices.

B. ASTM - American Society for Testing and Materials
1. D1730 - Preparation of Aluminum and Aluminum-Alloy Surfaces for Painting.
2. D1731 - Preparation of Hot-Dip Aluminum Surfaces for Painting.
3. D3274 - Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation.
4. D3359 - Measuring Adhesion by Tape Test.
5. D4214 - Evaluating Degree of Chalking of Exterior Paint Films.

C. SSPC - The Society For Protective Coating
1. PA Guide 5 - Guide to Maintenance Painting Programs.
2. SP1 - Solvent Cleaning.
3. SP2 - Hand Tool Cleaning.
4. SP3 - Power Tool Cleaning.
5. SP5/NACE 1 - White Metal Blast Cleaning.
6. SP6/NACE 3 - Commercial Blast Cleaning.
7. SP7/NACE 4 - Brush-Off Blast Cleaning
8. SP10/NACE 2 - Near-White Blast Cleaning.

1.03 WORKPLAN

A. The procedures proposed for the accomplishment of the work shall provide for safe conduct of the work, careful removal, and disposition of materials specified to be salvaged, protection of property, which is to remain undisturbed, and coordination with other work in progress. The work plan shall include a Safety and Health plan describing procedures for handling monitoring, and disposition of VOCs and other hazardous and toxic materials. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations. The Contractor shall test the materials designated by the Owner.

1.04 SUBMITTALS

A. Product Data
   1. Submit work plan and the names, quantity represented, and intended use for proprietary brands of materials proposed to be substituted for the specified materials when the required quantity of a particular batch is 200 liters 50 gallons or less.
   2. Submit manufacturer's current printed product description, material safety data sheets (MSDS), and technical data sheets for each product. Detailed mixing, thinning and application instructions, minimum and maximum application temperature, and curing and drying times shall be provided for each product submitted.

B. Qualifications: Submit statement certified by the Contractor attesting that the experience and qualifications of the workers (journeymen) comply with the Specifications.

C. Certificates: Submit certificate stating that products proposed for use meet the VOC regulations of the local Air Pollution Control Districts having jurisdiction over the geographical area in which the project is located.

D. Field Test: For the project record, submit written report of field test performed for each application and results achieved.

1.05 QUALITY ASSURANCE

A. Qualifications: Provide qualified workers trained and experienced in the preparation for painting of wood and metal surfaces in historic structures and shall submit documentation of 5 consecutive years of work of this type. A list of similar jobs shall be provided identifying when, where, and for whom the work was done. A current point-of-contact for identified references shall be provided.

B. Field Test: For final product selection, use manufacturer's test kit prior to application of any materials. Obtain City’s approval of test results prior to starting subsequent operations.
   1. If required, repeat field test until City’s acceptance.

1.06 PACKAGING, LABELING AND STORING

A. Paint removers, solvents, and other chemicals used for surface preparation shall be in sealed containers that legibly show the designated name, formula or specification number, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name of manufacturer. Such materials shall be furnished in containers not larger than 5 gallons; they shall be stored in accordance with the manufacturer's written directions; and as a minimum stored off the ground, under cover, with sufficient ventilation to prevent the buildup of flammable vapors and at temperatures between 40 and 95 degrees Fahrenheit.

1.07 ENVIRONMENTAL CONDITIONS

A. Unless otherwise recommended by the product manufacturer, the ambient temperature shall be between 45 and 95 degrees Fahrenheit when applying paint removers, solvents, or other preparation materials.

1.08 SAFETY AND HEALTH

A. Work shall comply with the Accident Prevention Plan, including the Activity Hazard Analysis as specified in the Contract Clauses. The Activity Hazard Analysis shall include analyses of the potential impact of surface preparation operations on personnel and on others involved in and adjacent to the work zone.

B. Worker Exposures: Exposure of workers to chemical substances shall not exceed limits as established by ACGIH-02.

C. Training: Workers having access to an affected work area shall be informed of the contents of the applicable material data safety sheets (MSDS) and shall be informed of potential health and safety hazard and protective controls associated with materials used on the project. An affected work area is one, which may receive dust, mists, and odors from the surface preparation operations. Workers involved in surface preparation and clean-up shall be trained in the safe handling and application, and the exposure limit, for each material which the worker will use in the project. Personnel having a need to use respirators and masks shall be instructed in the use and maintenance of such equipment.

D. Coordination: Work shall be coordinated to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from surface preparation and cleaning operations.

PART 2 - PRODUCTS

2.01 PAINT REMOVERS

A. Chemical paint removers shall be a commercial item specifically manufactured for the type of paint to be removed. Product can be selected from one of the following for the most efficient and effective while being the gentlest toward the existing substrate:
   1. Acceptable Manufacturer: Dumond, Inc., which is located at: 253 S. Bailey Rd.; Downingtown, PA 19335; Toll Free Tel: 800-245-1191 ; Tel: 609-655-7700; Fax: 609-655-7725; Email:request info (abensen@dumondglobal.com); Web:https://dumondglobal.com, product lines
      a. Peel Away 1
      b. Smart Strip Advanced
      c. Smart Strip PRO
   2. Dumond, Inc. Test Kit
      a. Test kit must be used to determine best product for field conditions.

B. Requests for substitutions will be considered in accordance with Standard Specifications.

2.02 EPOXY CONSOLIDANTS

A. Liquid Consolidant: Liquid wood consolidant shall consist of a 2-part, low-viscosity liquid epoxy that meets the criteria of Table 1.

B. Epoxy Paste: Epoxy paste shall consist of a 2-part, thixotropic paste that meets the criteria of Table 1.

TABLE 1

	CONSOLIDANT LIQUID	EPOXY PASTE
Properties	Low-Viscosity Liquid	No-Slump,Thixotropic Paste
Toxicity	Low	Very Low
Toxicity Cured	Non-Toxic	Non-Toxic
Ratios	1:1 by Volume	1:1 by Volume
Pot Life @ Room Temp.	30 minutes min.	50 minutes min.
Hardening @ Room Temp.	1 hr. or longer	1 hr. or longer
Hardening @ 60 deg. C	16 min. or less	18 min. or less
Viscosity Poises @ 22 deg. C	4.7 max.	Thixotropic paste
Solids	95 percent min.	98 percent min.
Tensile Strength	27.6 MPa	17.25 MPa
Elongation	50 percent	4 percent
Compressive Strength		
Failure	131 MPa	---
Yield	24 MPa	38 MPa

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Prior to starting work covered in this section review, and coordinate with requirements of hazardous materials handling or removal provided by Owner. The hazardous materials guidelines or requirements will take precedence over any requirements contained within this section.

B. Methods used for preparation of historic wood and metal surfaces for painting shall be the gentlest possible to achieve the desired results. Historic substrate materials shall not be damaged or marred in the process of surface preparations. Samples of the existing paint finishes shall be collected and analyzed for the purpose of documentation or matching, if so directed by the Owner. Material and application requirements for paints are covered in Section 099100 Painting and Coating.

3.02 VENTILATION

A. Interior work zones having a volume of 280 cubic meters 10,000 cubic feet or less shall be ventilated at a minimum of 2 air exchanges per hour. Ventilation in larger work zones shall be maintained by means of mechanical exhaust. Solvent vapors shall be exhausted outdoors, away from air intakes and workers. Return air inlets in the work zone shall be temporarily sealed before start of work until the prepared surfaces have dried. Operators and personnel in the vicinity of paint removal processes involving chemicals or mechanical action (sanding or blasting) shall wear respirators.

3.03 PROTECTION OF AREAS NOT TO BE PAINTED

A. Items not to be painted which are in contact with or adjacent to painted surfaces shall be removed or protected prior to surface preparation and painting operations. Items removed prior

to painting shall be replaced when painting is completed. Following completion of painting, workers skilled in the trades involved shall reinstall removed items. Surfaces contaminated by preparation materials shall be restored to original condition.

3.04 CLEANING OF SURFACES

A. Surfaces to be painted shall be clean and free of grease, dirt, dust, and other foreign matter before application of paint or surface treatments. After cleaning, surfaces shall exhibit a surface disfigurement rating of 7 or greater when evaluated in accordance with ASTM D3274. Dirt and surface contaminants shall be cleaned by brush with solutions of water and detergent or trisodium phosphate, then rinsed clean with water, and let dry. Surfaces on which mildew or other microbiological growth is present shall be cleaned with a detergent solution containing household bleach. Oil and grease shall be removed with clean cloths and cleaning solvents prior to mechanical cleaning. Cleaning solvents shall be of low toxicity with a flashpoint in excess of 100 degrees Fahrenheit. Cleaning shall be programmed so that dust and other contaminants will not fall on newly prepared or newly painted surfaces.

3.05 EXISTING PAINT

A. Existing paint shall be tested for adhesion to substrate per ASTM D3359, Test Method A and shall obtain a rating of 4 or better in order to be considered sound. Existing paint meeting this requirement may be considered a satisfactory base for repainting.

3.06 PAINT REMOVAL

A. Flaking, cracking, blistering, peeling or otherwise deteriorated paint shall be removed by scraping with hand scrapers. After scraping, removal of large areas of paint or paint on architectural details shall be accomplished using chemical paint removers. Paint shall be removed to bare substrate. Open flame heat devices shall not be used. Mechanical paint removal shall not damage or mar the substrate material.

B. Chemical Paint Removers: Chemical paint removers shall be used in accordance with manufacturer's recommendations. If chemical strippers are used, substrate shall be neutralized after stripping to a pH of 5 to 8.5.

3.07 SURFACE PREPARATION

A. After cleaning and removal of deteriorated paint, edges of remaining chipped paint shall be feather-edged and sanded smooth. Damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls shall be repaired with suitable material to match adjacent undamaged areas. Slick surfaces shall be roughened. Rusty metal surfaces shall be cleaned per SSPC SP1. Chalk shall be removed so that when tested in accordance with ASTM D4214, the chalk resistance rating is no less than 8. New, proposed coatings shall be compatible with existing coatings. If existing surfaces are glossy, the gloss shall be reduced.

3.08 WOOD SURFACES

A. Wood surfaces shall be cleaned of foreign matter. Wood surfaces adjacent to surfaces to receive water-thinned paints shall be primed and/or touched up before applying water-thinned paints. Small, dry seasoned knots shall be scraped, cleaned, and given a thin coat of commercial knot

sealer before application of the priming coat. Pitch on large, open, unseasoned knots and all other beads or streaks of pitch shall be scraped off, or, if it is still soft, removed with mineral spirits or turpentine, and the resinous area shall be thinly coated with knot sealer.

B. Wood Repair: Badly decayed areas shall be removed and repaired. Areas and pieces decayed beyond repair shall be replaced with new pieces that match originals in all respects. Moderately decayed areas, weathered, or gouged wood shall be patched with approved patching compounds, and shall be sanded smooth. The source or cause of wood decay shall be identified and corrected prior to application of patching materials. Wet wood shall be completely dried to a moisture content not exceeding 12 percent, as measured by a moisture meter, to its full depth before patching, unless otherwise authorized. Wood that is to be patched shall be clean of dust, grease, and loose paint.
   1. Epoxy Wood Repair: Epoxy wood repair materials shall be applied in accordance with the manufacturer's written instructions. Health and safety instructions shall be followed in accordance with the manufacturer's instructions. Clean mixing equipment shall be used to avoid contamination. Mix and proportions shall be as directed by the manufacturer. Batches shall be only large enough to complete the specific job intended. Patching materials shall be completely cured before painting or reinstallation of patched pieces.

   2. Epoxy Consolidant and Epoxy Paste: Epoxy liquid wood consolidant shall be used:
      a. To penetrate and impregnate deteriorated wood sections in order to reinforce wood fibers that have become softened or absorbent.
      b. As a primer for areas that are to receive epoxy paste filler.
      c. Epoxy paste shall be used to fill areas where portions of wood are missing such as holes, cracks, gaps, gouges, and other voids.

D. Exposed Ferrous Metals: Exposed ferrous metals such as nail heads on or in contact with wood surfaces to be painted with water-thinned paints, shall be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

E. Finishing Nails: Finishing nails shall be set, and all holes and surface imperfections shall be primed. After priming, holes and imperfections in finish surfaces shall be filled with putty or plastic wood filler, colored to match the finish coat if natural finish is required, allowed to dry, and sanded smooth. Putty or wood filler shall be compatible with subsequent coatings.

G. Wood Preservative: Areas of bare wood in exterior locations prone to excessive moisture or standing water shall be treated with a commercial, fungicide, paintable water repellant/preservative. Water repellant/preservatives shall not be used on interior surfaces.

3.09 METAL SURFACES

A. Metal surfaces shall be cleaned of foreign matter. Programs for preparation of metal shall be per SSPC PA Guide 5. Grease, oil, and other soluble contaminants shall be removed using solvent cleaning per SSPC SP1. Surfaces shall be free from soils and corrosion; e.g. grease, oil, solder flux, welding flux, weld spatter, sand, rust, scale, and other contaminants that might interfere with the application of the new finish. Cleaning methods shall be the gentlest possible to achieve the desired result. Metals which are soft, thin, or exhibit fine detail shall not be abrasively cleaned. Evidence of corrosion or contamination on a previously cleaned surface shall be cause for recleaning prior to painting.

B. Ferrous Surfaces: Ferrous surfaces that contain loose rust, loose mill scale, and other foreign substances shall be cleaned mechanically with hand tools according to SSPC SP2, power tools according to SSPC SP3 or by blast cleaning according to SSPC SP5/NACE 1. Shop-coated ferrous surfaces shall be protected from corrosion by treating and touching up corroded areas immediately upon detection.

C. Nonferrous Metallic Surfaces: Galvanized, aluminum and aluminum-alloy, lead, copper, and other nonferrous metal surfaces shall be solvent-cleaned in accordance with SSPC SP1.
   1. Aluminum: Aluminum surfaces shall be treated per ASTM D1730 or ASTM D1731. Steel wool, steel brushes, and uninhibited caustic etching solutions, such as sodium hydroxide, shall not be used on aluminum.

   2. Zinc: Zinc surfaces including zinc-coated substrates, shall be cleaned prior to painting as follows: degrease, soak in a mild and inhibited alkaline cleaner, rinse with clean overflowing water, clean anodically in an acid (e.g. 0.25 to 0.75 percent sulfuric acid), and rinse with clean overflowing water.

3.10 TIMING

A. Surfaces that have been cleaned, pretreated, and otherwise prepared for painting shall be given a coat of the specified first coat as soon as practical after such pretreatment has been completed, but prior to any deterioration of the prepared surface. Unless otherwise directed, the first coat primer shall be applied within 48 hours of surface preparation.

3.11 SURFACES TO BE PREPARED FOR PAINTING

A. Surfaces shall be prepared as specified and as shown in the painting schedule in Section 099100 Painting.

3.12 CLEANING

A. Cloths, cotton waste and other debris that might constitute a fire hazard shall be placed in closed metal containers and removed at the end of each day. Containers shall be removed from the site or destroyed in an approved manner. Preparation materials and other deposits on adjacent surfaces shall be removed and the entire job left clean and ready for painting.

END OF SECTION 099110

APPENDIX C – STRUCTURAL CALCULATIONS - ARBOR

T&S STRUCTURAL

1171 Homestead Rd.
Suite 275
Santa Clara, CA 95050

Phone: (408) 615-9200
Fax: (408) 615-9900

Structural Calculations
For

Jack House
Trellis

536 Marsh Street
San Luis Obispo, CA 93401

April 2, 2024

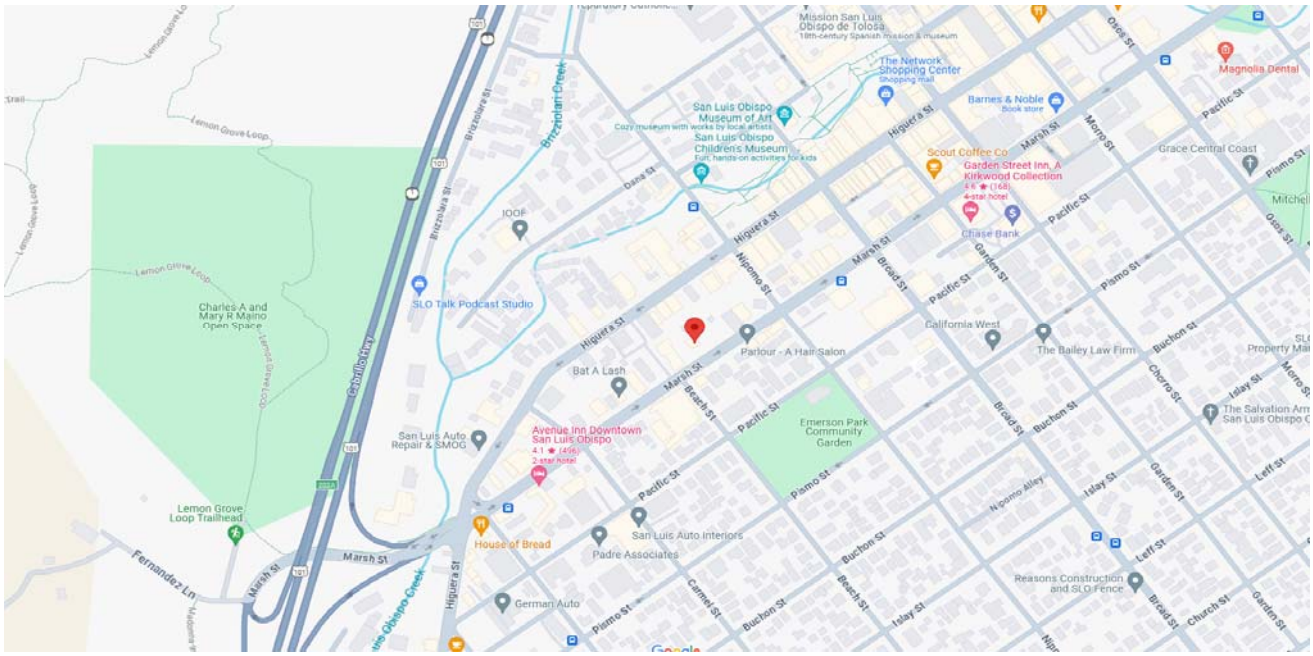
JOB # 246040

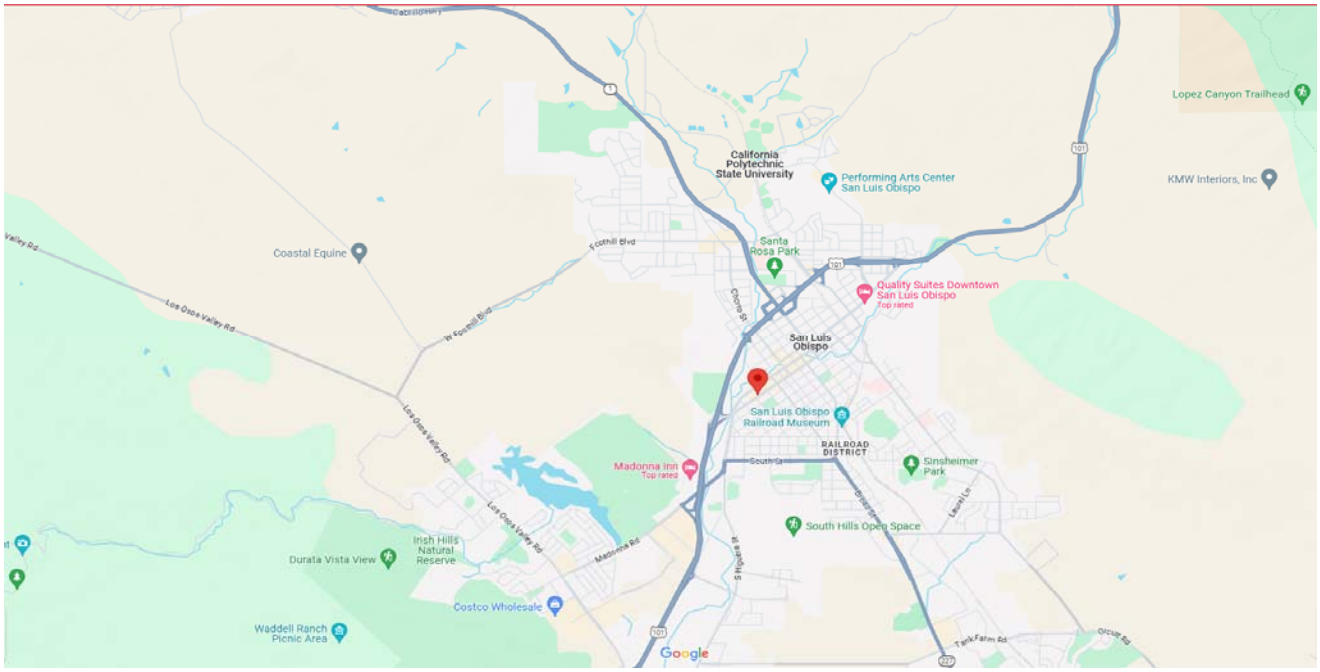
1171 Homestead Rd.
Suite 275
Santa Clara, CA 95050

Phone: (408) 615-9200
Fax: (408) 615-9900

Sheet: of
Date: 4/1/2024
Job #: 246040
Project: Jack House Trellis

SITE MAP





T&S STRUCTURAL
1171 Homestead Rd.
Suite 275
Santa Clara, CA 95050

Phone: (408) 615-9200
Fax: (408) 615-9900

Sheet:
Date: 4/2/2024
Job #: 246040
Project: Jack House Trellis
By: T.D.

VERTICAL LOADING

	Typical Arbor Roof	Roof live load
Typical roof slope	12 :12	
		20.00 psf per CBC
3x4 Roof Joists at 7" o.c.	3.85 psf	
Roof Beams	1.10 psf	
4x Roof Beam at 4'-0" o.c.	1.10 psf	
4x Curb Beams at 4'-0" o.c.	1.21 psf	
Gable Panels	0.50 psf	
Columns	1.39 psf	
Miscellaneous	0.85 psf	
	10.00 psf	
Load to Roof Beams	7.76 psf	
Total Load Trellis	10.00 psf	

Seismic Load to Trellis	=	1076	lb
Seismic Load to Column A	=	269	lb
Seismic Load to Column B	=	269	lb
Seismic Load to Column C	=	269	lb
Seismic Load to Column D	=	269	lb
Trellis Area	=	196	sq. ft.

10psf*196sq. ft.*0.549

base shear (LRFD)

T&S Structural Engineering
1171 Homestead Rd. Suite 275
Santa Clara, CA 95050
408-615-9200

Project Title: Jack House Trellis
Engineer: T.D.
Project ID: 246040
Project Descr:

Wood Beam

Project File: Beam Design.ec6

LIC# : KW-06014965, Build:20.24.02.28 DUQUETTE ENGINEERING

DESCRIPTION: Trellis Joist

CODE REFERENCES

Calculations per NDS 2018, IBC 2021, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Alaska Yellow Cedar
Wood Grade : No.2

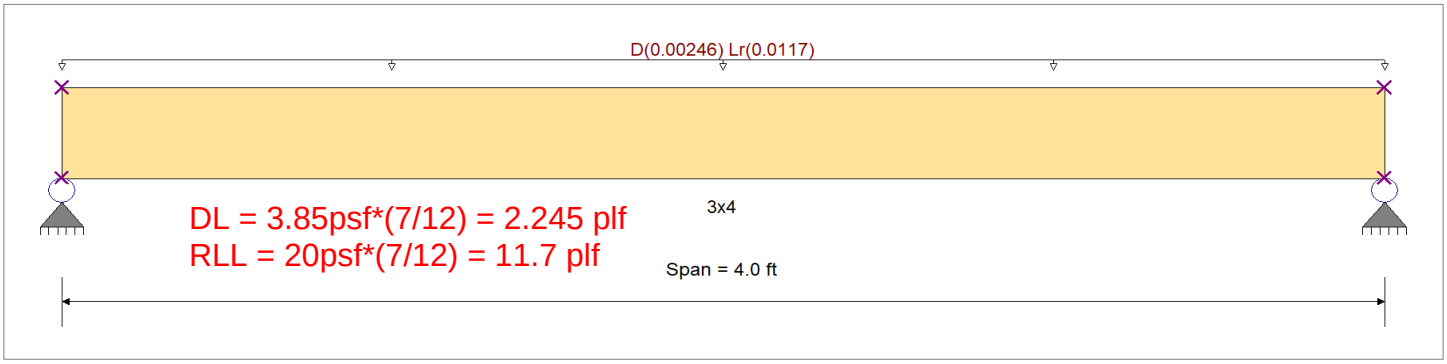
Beam Bracing : Completely Unbraced

Fb +	800 psi
Fb -	800 psi
Fc - Prll	1000 psi
Fc - Perp	510 psi
Fv	225 psi
Ft	450 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	28.72 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : D = 0.002460, Lr = 0.01170 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.039 : 1	Maximum Shear Stress Ratio	=	0.015 : 1
Section used for this span		3x4	Section used for this span		3x4
fb: Actual	=	66.58 psi	fv: Actual	=	4.18 psi
F'b	=	1,709.84 psi	F'v	=	281.25 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	2.000 ft	Location of maximum on span	=	3.723 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.006 in	Ratio =	8222 >=240	Span: 1 : Lr Only
Max Upward Transient Deflection	0 in	Ratio =	0 <240	n/a
Max Downward Total Deflection	0.007 in	Ratio =	6793 >=180	Span: 1 : +D+Lr
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0071	2.015		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.028	0.028
Max Upward from Load Combinations	0.028	0.028
Max Upward from Load Cases	0.023	0.023
D Only	0.005	0.005
+D+Lr	0.028	0.028
Lr Only	0.023	0.023

T&S Structural Engineering
1171 Homestead Rd. Suite 275
Santa Clara, CA 95050
408-615-9200

Project Title: Jack House Trellis
Engineer: T.D.
Project ID: 246040
Project Descr:

Wood Beam

Project File: Beam Design.ec6

LIC# : KW-06014965, Build:20.24.02.28 DUQUETTE ENGINEERING

DESCRIPTION: A-Frame Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2021, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

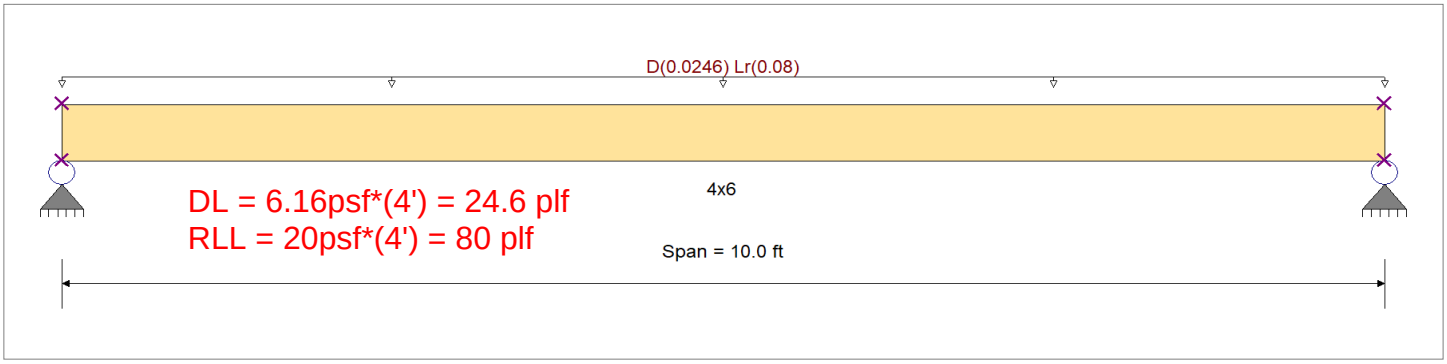
Wood Species : Alaska Yellow Cedar
Wood Grade : No.1

Beam Bracing : Completely Unbraced

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,050.0 psi
Fc - Perp	510.0 psi
Fv	225.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,400.0 ksi
Eminbend - xx	510.0 ksi
Density	28.720 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : D = 0.02460, Lr = 0.080 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.617 : 1	Maximum Shear Stress Ratio	=	0.132 : 1
Section used for this span		4x6	Section used for this span		4x6
fb: Actual	=	889.16 psi	fv: Actual	=	37.18 psi
F'b	=	1,440.58 psi	F'v	=	281.25 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	5.000 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.267 in	Ratio =	450 >=240	Span: 1 : Lr Only
Max Upward Transient Deflection	0 in	Ratio =	0 <240	n/a
Max Downward Total Deflection	0.348 in	Ratio =	344 >=180	Span: 1 : +D+Lr
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.3484	5.036		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.523	0.523
Max Upward from Load Combinations	0.523	0.523
Max Upward from Load Cases	0.400	0.400
D Only	0.123	0.123
+D+Lr	0.523	0.523
Lr Only	0.400	0.400

T&S Structural Engineering
1171 Homestead Rd. Suite 275
Santa Clara, CA 95050
408-615-9200

Project Title: Jack House Trellis
Engineer: T.D.
Project ID: 246040
Project Descr:

Wood Beam

Project File: Beam Design.ec6

DESCRIPTION: Main Roof Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2021, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

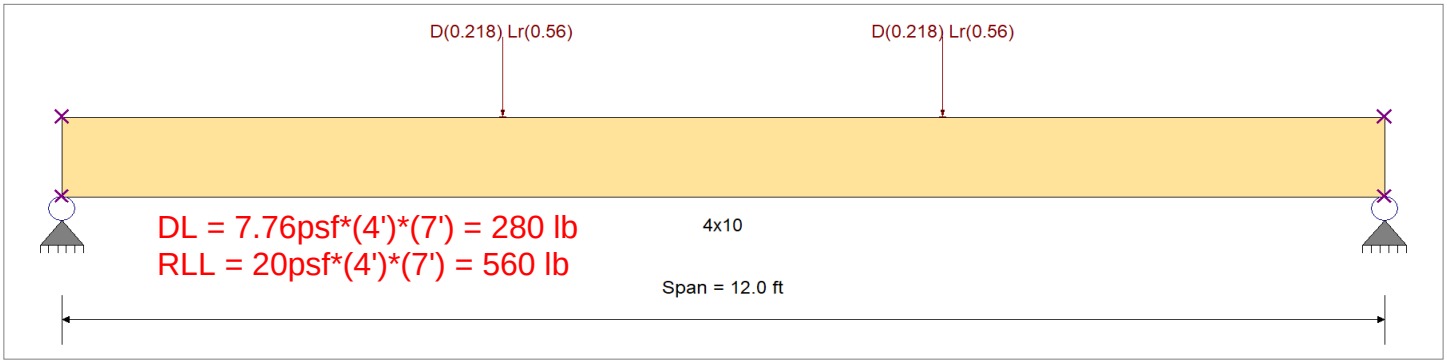
Wood Species : Alaska Yellow Cedar
Wood Grade : No.1

Beam Bracing : Completely Unbraced

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,050.0 psi
Fc - Perp	510.0 psi
Fv	225.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,400.0 ksi
Eminbend - xx	510.0 ksi
Density	28.720 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Point Load : D = 0.2180, Lr = 0.560 k @ 4.0 ft
Point Load : D = 0.2180, Lr = 0.560 k @ 8.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.575 : 1	Maximum Shear Stress Ratio	=	0.128 : 1
Section used for this span		4x10	Section used for this span		4x10
fb: Actual	=	748.20 psi	fv: Actual	=	36.05 psi
F'b	=	1,301.78 psi	F'v	=	281.25 psi
Load Combination		+D+Lr	Load Combination		+D+Lr
Location of maximum on span	=	7.270 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.185 in	Ratio =	779 >=240	Span: 1 : Lr Only
Max Upward Transient Deflection	0 in	Ratio =	0 <240	n/a
Max Downward Total Deflection	0.257 in	Ratio =	561 >=180	Span: 1 : +D+Lr
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.2566	6.044		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.778	0.778
Max Upward from Load Combinations	0.778	0.778
Max Upward from Load Cases	0.560	0.560
D Only	0.218	0.218
+D+Lr	0.778	0.778
Lr Only	0.560	0.560

T&S Structural Engineering
1171 Homestead Rd. Suite 275
Santa Clara, CA 95050
408-615-9200

Project Title: Jack House Trellis
Engineer: T.D.
Project ID: 246040
Project Descr:

Steel Column

Project File: Beam Design.ec6

LIC# : KW-06014965, Build:20.24.02.28 DUQUETTE ENGINEERING

DESCRIPTION: Trellis HSS Column

Code References

Calculations per AISC 360-16, IBC 2021, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Steel Section Name : **HSS3-1/2x3-1/2x1/4**

Analysis Method :	Allowable Strength
Steel Stress Grade	
Fy : Steel Yield	46.0 ksi
E : Elastic Bending Modulus	29,000.0 ksi

Overall Column Height	8.50 ft
Top & Bottom Fixity	Top Pinned, Bottom Fixed
Brace condition :	

Unbraced Length for buckling ABOUT X-X Axis = 8.50 ft, K = 2.1
Unbraced Length for buckling ABOUT Y-Y Axis = 8.50 ft, K = 2.1

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 89.075 lbs * Dead Load Factor
AXIAL LOADS . . .
Axial Load at 8.50 ft, D = 0.3460, LR = 0.6930 k
BENDING LOADS . . .
A-Frame Loading onto Column at 45 Degree: Lat. Point Load at 8.50 ft creating Mx-x, D = 0.3460, LR = 0.6930, E = 0.2690 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.06791** : 1

Load Combination	+D+Lr
Location of max.above base	0.0 ft
At maximum location values are . . .	
Pa : Axial	1.128 k
Pn / Omega : Allowable	16.611 k
Ma-x : Applied	0.0 k-ft
Mn-x / Omega : Allowable	8.034 k-ft
Ma-y : Applied	0.0 k-ft
Mn-y / Omega : Allowable	8.034 k-ft

PASS Maximum Shear Stress Ratio **0.0** : 1

Load Combination	0.0
Location of max.above base	0.0 ft
At maximum location values are . . .	
Va : Applied	0.0 k
Vn / Omega : Allowable	0.0 k

Maximum Load Reactions . .

Top along X-X	0.0 k
Bottom along X-X	0.0 k
Top along Y-Y	0.0 k
Bottom along Y-Y	0.0 k

Maximum Load Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination :

Along X-X 0.0 in at 0.0 ft above base
for load combination :

DL = 10psf*(7')*(7') = 490 lb
RLL = 20psf*(7')*(7') = 980 lb
DL = 490lb*cos45 = 346 lb (axial)
DL = 490lb*sin45 = 346 lb (lateral)
RLL = 980lb*cos45 = 693 lb (axial)
RLL = 980lb*sin45 = 693 lb (lateral)
EQ = 269 lb (lateral)

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.026	PASS	0.00 ft	1.00	1.00	162.27	162.27	0.000	PASS	0.00 ft
+D+Lr	0.068	PASS	0.00 ft	1.00	1.00	162.27	162.27	0.000	PASS	0.00 ft
+D+0.70E	0.026	PASS	0.00 ft	1.00	1.00	162.27	162.27	0.000	PASS	0.00 ft
+D+0.5250E	0.026	PASS	0.00 ft	1.00	1.00	162.27	162.27	0.000	PASS	0.00 ft
+0.60D+0.70E	0.016	PASS	0.00 ft	1.00	1.00	162.27	162.27	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction @ Base	X-X Axis Reaction k @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Mx - End Moments k-ft @ Base	@ Top	My - End Moments @ Base	@ Top
D Only	0.435								
+D+Lr	1.128								
+D+0.70E	0.435								
+D+0.5250E	0.435								
+0.60D+0.70E	0.261								
Lr Only	0.693								
E Only									

T&S Structural Engineering
1171 Homestead Rd. Suite 275
Santa Clara, CA 95050
408-615-9200

Project Title: Jack House Trellis
Engineer: T.D.
Project ID: 246040
Project Descr:

Steel Column

Project File: Beam Design.ec6

DESCRIPTION: Trellis HSS Column

Extreme Reactions

Item	Extreme Value	Axial Reaction @ Base	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Mx - End Moments @ Base	@ Top	k-ft	My - End Moments @ Base	@ Top
Axial @ Base	Maximum	1.128										
"	Minimum											
Reaction, X-X Axis Base	Maximum	0.435										
"	Minimum	0.435										
Reaction, Y-Y Axis Base	Maximum	0.435										
"	Minimum	0.435										
Reaction, X-X Axis Top	Maximum	0.435										
"	Minimum	0.435										
Reaction, Y-Y Axis Top	Maximum	0.435										
"	Minimum	0.435										
Moment, X-X Axis Base	Maximum	0.435										
"	Minimum	0.435										
Moment, Y-Y Axis Base	Maximum	0.435										
"	Minimum	0.435										
Moment, X-X Axis Top	Maximum	0.435										
"	Minimum	0.435										
Moment, Y-Y Axis Top	Maximum	0.435										
"	Minimum	0.435										

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir		Distance		Max. Deflection in Y dir		Distance	
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+Lr	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.70E	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.5250E	0.0000	in	0.000	ft	0.000	in	0.000	ft
+0.60D+0.70E	0.0000	in	0.000	ft	0.000	in	0.000	ft
Lr Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
E Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

T&S Structural Engineering
1171 Homestead Rd. Suite 275
Santa Clara, CA 95050
408-615-9200

Project Title: Jack House Trellis
Engineer: T.D.
Project ID: 246040
Project Descr:

Pole Footing Embedded in Soil

Project File: Beam Design.ec6

DESCRIPTION: Trellis Footing Embedment

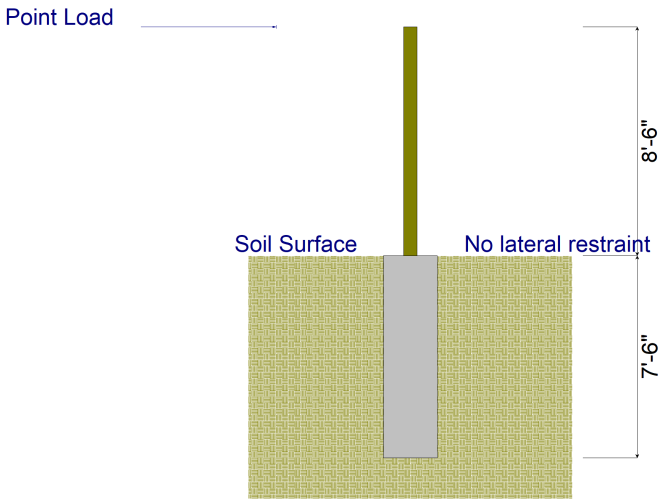
Code References

Calculations per IBC 2021 1807.3, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

16" pier dia. x 1.5 (arch action)

Pole Footing Shape	Circular
Pole Footing Diameter	24.0 in
Calculate Min. Depth for Allowable Pressures	
No Lateral Restraint at Ground Surface	
Allow Passive	150.0 pcf
Max Passive	1,500.0 psf



Controlling Values

Governing Load Combinatio	D+Lr
Lateral Load	1.039 k
Moment	8.832 k-ft
NO Ground Surface Restraint	
Pressures at 1/3 Depth	
Actual	**369.496** psf
Allowable	**370.292** psf
Minimum Required Depth	**7.50 ft**
Footing Base Area	3.142 ft^2
Maximum Soil Pressure	0.3307 ksf

Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (kl		Vertical Load (k)	
D : Dead Load	0.3460 k		k/ft	0.3460 k	
Lr : Roof Live	0.6930 k		k/ft	0.6930 k	
L : Live	k		k/ft	k	
S : Snow	k		k/ft	k	DL = 10psf*(7')*(7') = 490 lb
W : Wind	k		k/ft	k	RLL = 20psf*(7')*(7') = 980 lb
E : Earthquake	0.2690 k		k/ft	k	DL = 490lb*cos45 = 346 lb (axial)
H : Lateral Earth	k		k/ft	k	DL = 490lb*sin45 = 346 lb (lateral)
Load distance above ground surface	8.50 ft	TOP of Load above ground surface	ft		RLL = 980lb*cos45 = 693 lb (axial)
		BOTTOM of Load above ground surface	ft		RLL = 980lb*sin45 = 693 lb (lateral)
					EQ = 269 lb (lateral)

Load Combination Results

	Forces @ Ground Surface		Required	Pressure at 1/3 Depth		Soil Increase
Load Combination	Loads - (k)	Moments - (ft-k)	Depth - (ft)	Actual - (psf)	Allow - (psf)	Factor
D Only	0.346	2.941	4.88	242.4	242.8	1.000
+D+Lr	1.039	8.832	7.50	369.5	370.3	1.000
+D+0.750Lr	0.866	7.359	7.00	344.4	344.7	1.000
+D+0.70E	0.534	4.542	5.75	285.9	286.3	1.000
+D+0.5250E	0.487	4.141	5.63	275.7	276.5	1.000
+0.60D+0.70E	0.396	3.365	5.13	254.9	255.5	1.000

ASCE Hazards Report

Address:
536 Marsh St
San Luis Obispo, California
93401

Standard:	ASCE/SEI 7-16	**Latitude:**	35.276977
Risk Category:	II	**Longitude:**	-120.666284
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	186.38562626289627 ft (NAVD 88)

Seismic

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	1.056	S_{D1} :	N/A
S_1 :	0.389	T_L :	8
F_a :	1.2	PGA :	0.468
F_v :	N/A	PGA_M :	0.561
S_{MS} :	1.267	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.845	C_v :	1.311

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Mon Apr 01 2024

Date Source: USGS Seismic Design Maps

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE Hazard Tool.

T&S STRUCTURAL
1171 Homestead Rd.
Suite 275
Santa Clara, CA 95050

Phone: (408) 615-9200
Fax: (408) 615-9900

Sheet:
Date: 4/2/2024
Job #: 246040
Project: Jack House Trellis

BASE SHEAR CALCULATION (Arbor Trellis)

Applicable Building Code:	2022 CBC / ASCE 7-16 - Equivalent Lateral Force Procedure		
Applicable Load Combination:	D + L + 0.7 E		(1605.3.2, Eqn.16-21)
Earthquake Load:	$E = E_h + E_v$ [= 0 for Horizontal Diaphragm only]		(ASCE 7-16, Eqn.12.4-2)
Earthquake Load (Base Shear):	$E_h = \rho Q_E = \rho V = \rho C_S W$		(ASCE 7-16, Eqn.12.4-3)
Seismic Response Coefficient:	$C_s = S_{DS} / (R/I) =$ **0.422**		(ASCE 7-16, Eqn.12.8-2)
Site Class: D			(Table 1613.5.2)
Design Spectral Response Accelerations:		Site Coefficients	(Table 1613.5.3-1,2)

Location	MSRA	Site coefficients		SR Coefficents	
Latitude = 37.276977	S_s = 1.056	F_a = 1.20	S_{MS} = 1.267	S_{DS} =	0.845
Longitude = -120.66628	S_1 = 0.600	F_v = 1.70	S_{M1} = 1.020	S_{D1} =	0.680

Seismic Design Category: E

Seismic Importance Factor:	I = 1.00	for Occupancy Category II	(ASCE 7-16 Table 1.5-1)
Redundancy/Reliability Factor:	ρ = 1.3	[ρ = 1.0, if each story resists more than 35% Base Shear, ρ = 1.3, if Seismic Design Category D, E, or F or above condition cannot be met.]	(ASCE 7-16,12.3.4.2)
Response Modification Factor:	R = 2.0	Inverted Pendulumn Type Structure	(ASCE 7-16 Table 15.4-2)

Seismic Response Coefficient:	$C_{s\ max} = S_{D1} / (R/I)*T =$	**2.230**	>	**0.422**	OK!	(ASCE 7-16, Eqn.12.8-3)
				0.154		
	T_L (sec) = 12					(ASCE 7-16, Figure 22-16)
	$C_{s\ min} = 0.044 S_{DS} I =$	**0.037**	>	**0.010**	OK!	(ASCE 7-16, Eqn.12.8-5)
Approximate Fundamental Period:	$T_a = C_t H_n^x =$	**0.152**	<	T_L	OK!	(ASCE 7-16,Table12.8-2)
	C_t 0.020					
	x 0.75					
	H_n (ft) 15.00					
Seismic Response Coefficient: (for $S_1 \geq 0.6$)	$C_s = 0.5\ S_1 / (R/I) =$	**0.150**	<	**0.422**	OK!	(ASCE 7-16, Eqn.12.8-6)

Base Shear: **V = 0.549 W**

Total Design Base Shear = 0.7 V = 0.384 W (ASD)

APPENDIX D – LEAD AND ASBESTOS TESTING

Asbestos Inspections of SLO
www.sloasbestos.com

LEAD PAINT/ASBESTOS SURVEY

Jack House

536 Marsh Street

San Luis Obispo, CA 93401

February 7, 2024

Prepared by:

Mike Bruffey
Asbestos Inspections SLO
9517 Carmel Road
Atascadero, CA 93422
Phone: (805) 235-0582

Prepared for:

City of San Luis Obispo
Sandra Golonka
919 Palm Street
San Luis Obispo, CA 93401
Office: (805) 781-7239

Asbestos Inspections of SLO
www.sloasbestos.com

9517 Carmel Road, Atascadero, CA 93422 Phone: (805) 235-0582 Email: bruffey@att.net

February 7, 2024

Sandra Golonka
City of San Luis Obispo Public Works
919 Palm Street
San Luis Obispo, CA 93401
Phone: (805) 781-7239

Re: Summary: Exterior Lead Paint and Limited Asbestos Survey
Jack House Widow's Walk Rail and Roofing
536 Marsh Street, San Luis Obispo, CA

Lead

The findings contained in this report are based on my inspection for suspect lead containing building components on the Widow's Walk railing and second floor railing at the Jack House, San Luis Obispo, CA. The inspection was conducted on January 29, 2024. The inspection on the exterior paint was conducted for Cal/OSHA and EPA compliance in conjunction with a planned component repair and replacement project. All selected components were visually inspected, and eight (8) representative samples of paint were obtained, documented, and sent to a laboratory for analysis. Samples were not collected from every painted surface, however the samples obtained are representative of the painted materials at this specific location. To obtain 4-6 in^2. of paint, I used a Bahco paint scraper to remove paint from the various components. **The levels of lead in the paint range from 190 ppm and up to 55,000 ppm and indicate lead-based paint is present.** The levels were reported by LA Testing in Huntington Beach, CA utilizing Flame AAS analysis. Lead based paint is anything above 5,000 ppm.

Asbestos

Samples of roofing materials were also collected from the Widow's Walk flat roof, sloped roof, and under the wood shake roof. One sample of gray/black mastic was also collected from the chimney and access hatch and another from the 2nd floor metal roof. Lab analysis indicated that the roofing materials and felt are all negative for asbestos, but the one sample of gray/black mastic on the chimney/access hatch contains 2% chrysotile asbestos. There is approximately 1-2 square feet of material present.

AISLO appreciates the opportunity to perform these services and I look forward to working with you on future projects. If you have any questions or comments regarding the information contained in this report or if I can be of further assistance, please contact me by phone or email.

Sincerely,

Mike Bruffey
Asbestos Inspections SLO - AISLO
CA Certified Asbestos Consultant #19-6499 | CDPH Lead Inspector Assessor LRC-00003723

SAMPLING AND ANALYSIS

This inspection involved sampling the exterior painted building components on the Widow's Walk at the Jack House and sending those samples to an accredited laboratory for analysis for the presence and amount of lead. The samples were analyzed by LA Testing using Flame Atomic Absorption Spectroscopy or ICP in accordance with the Environmental Protection Agency (EPA) Method (3050B/7420 FAA) or (3050B/6010D ICP) to identify lead content. The actual method used is noted on the Test Report from LA Testing. LA Testing is certified to analyze for lead in materials and is in Huntington Beach, CA. They are accredited by the American Industrial Hygiene Association, the National Institute of Standards and Technology, and the California Department of Public Health (CDPH). Please note the attached laboratory report. The following is a detailed description of the work performed at this location:

1. Submission of samples to an EPA accredited lab for analysis that provides a report containing:
    i. Sample identification number (Asbestos Inspections of SLO)
    ii. Laboratory sample identification number
    iii. Analytical technique
    iv. Quality control procedures
    v. Amount of lead (if any) in each material

2. Analyze the laboratory sample results and produce a comprehensive written report that includes:
    - Applicable Definitions
    - Summary of Laboratory Results
    - Conclusions and Recommendations
    - Disclaimers
    - Sample Location Diagram (if requested)
    - Metals Analysis of Paints
    - Analysis Request Form - Chain of Custody
    - CDPH Lead Hazard Evaluation Report Form 8552
    - Credentials – Inspector

APPLICABLE DEFINITIONS

Abatement – any set of measures designed to reduce or eliminate lead hazards or lead-based paint for public and residential buildings but does not include containment or cleaning.

Component – a structural element or fixture, such as a wall, floor, ceiling, door, window, molding, trim, railing, cabinet, gutter, or downspout.

Deteriorated Lead-Based Paint – lead-based paint or presumed LBP that is cracking, chalking, flaking, chipping, peeling, non-intact, failed or otherwise separating from a component.

Lead-Based Paint – paint or other surface coatings that contain an amount of lead equal to or in excess of:

(a) one milligram per square centimeter (1.0 mg/cm^2)
(b) half of one percent (.05%) by weight (5000 parts per million (ppm)

Lead Hazard – deteriorated lead-based paint, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.

Lead-Related Construction Work – any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation, and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead.

Presumed Lead-Based Paint – paint or surface coating affixed to a component in or on a structure constructed prior to January 1, 1978.

Renovation, Repair and Painting Rule (RRP) – requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in homes, childcare facilities and pre-schools built before 1978 have their firm certified by EPA, use certified renovators who are trained by EPA-approved training providers and follow lead-safe work practices.

9517 Carmel Road, Atascadero, CA 93422 – Phone: (805) 235-0582 – Email: bruffey@att.net

SUMMARY OF LAB RESULTS - LEAD

A total of 8 samples were collected, documented, and sent to LA Testing to be analyzed for lead content. Most of the paint was in fair condition and a small amount of flaking, peeling, and damaged paint was observed.

Sample #	Location or Room #	Material Description and Building Component	Lead Content ppm
L1	**Widow's Walk**	**8"x8" White wood post**	**1,400**
L2	**Widow's Walk**	**Circular rail white**	**55,000**
L3	**Widow's Walk**	**Under top rail blue paint**	**50,000**
L4	**Widow's Walk**	**Under Top Rail white**	**1,200**
L5	**Widow's Walk**	**Top of Post Round red**	**35,000**
L6	**Widow's Walk**	**Top flat portion of rail**	**190**
L7	**2nd Floor Deck**	**Ornate white railing**	**2,100**
L8	**2nd Floor Deck**	**Ornate white railing blue**	**920**

As a comparison, the EPA and CDPH consider a material to be lead-based paint when it exceeds .5% or 5,000 ppm (parts per million). In addition, the Consumer Product Safety Commission (CPSC) set a limit of .009% or 90 ppm of lead in paint for children's toys and CAL OSHA regulates workers who disturb lead coated surfaces at any detectable lead level.

High levels of lead were detected in the following samples (>5,000 ppm):

L2 White circular portion of rail
L3 Blue portion of top rail
L5 Round ornate component on top of rail

Moderate levels of lead were detected in the following samples (>1,000 – 4,999 ppm):

L1 8"x8" square railing post
L4 Under the top railing
L7 Ornate white railing

All other paint sampled was between <80 ppm and 920 ppm.

SUMMARY OF LAB RESULTS - ASBESTOS

Sample#	Location or Room #	Material Description	Asbestos Present	Type of Asbestos	% Asbestos	Quantity	Condition	NESHAPS Category
1	Roof WW	Angled Roof Roofing	NO	NA	NA	NA	NA	NA
2	Roof WW	Wood Shake Black Felt	NO	NA	NA	NA	NA	NA
3	Roof WW	Flat Silver Rolled Roofing	NO	NA	NA	NA	NA	NA
4	Roof WW	Gray/Black Mastic	YES	CH	2%	2 sq ft	Good	CATI NF
5	2nd Floor	Black Tar	NO	NA	NA	NA	NA	NA
6	2nd Floor	Black Tar	NO	NA	NA	NA	NA	NA

9517 Carmel Road, Atascadero, CA 93422 – Phone: (805) 235-0582 – Email: bruffey@att.net

CONCLUSIONS and RECOMMENDATIONS

High levels of lead are present on three components sampled and analyzed at this location while some of the paint contained moderate to low levels of lead. Any LBP that is flaking and peeling or otherwise deteriorated is a lead hazard. This deteriorated paint should be removed by a lead abatement contractor certified and licensed in the State of California and stabilized to prevent further damage. Components similar to the components identified as containing lead-based paint, should be considered to also contain lead-based paint. Painted building components with any level of lead can be managed in place by removing deteriorated or damaged paint and stabilized in a maintenance program.

Due to the unknown painting history on this structure, paint not sampled and tested by the laboratory should be assumed to contain lead and if damaged, considered to be a lead hazard.

The State of California, Title 17, Division 1, and Chapter 8 pertains to all public and residential buildings in California and is enforced by the CDPH. Pursuant to Title 17 and EPA regulations, lead-based paint is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1.0 mg/cm^2) or more than half of one percent >0.5% or 5,000 parts per million (ppm) by weight. Title 17 also defines a lead hazard as deteriorated lead-based paint, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisances which may result in persistent or quantifiable lead exposure. Additionally, worker exposure to materials containing lead during construction work is regulated by the Federal OSHA 29 CFR 1926.62(a) and CAL OSHA 8 CCR §1532.1(a). These regulations require worker protection during construction "…where lead or materials containing lead are present."

Any contractor conducting work which will disturb the painted surfaces in this location should receive proper notification of the lead content and the condition of the lead containing surfaces prior to demolition, renovation, or any activity which may disturb the material. All work should be conducted in compliance with the CAL OSHA Title 8, Section 1532.1, and all applicable EPA regulations.

These conclusions and recommendations are based on the requirements set forth by the Department of Housing and Urban Development *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing,* 40 CFR Part 61 and CAL OSHA Construction Safety Orders, Title 8, Chapter 4, Section 1532.1.

Work which disturbs lead based paint in quantities of more than 6 square feet inside or 20 square feet outside in a single-family residence or child occupied facility built prior to 1978, requires a certified renovator to conduct the work in accordance with EPA's 2008 Lead-Based Paint Renovation, Repair and Painting (RRP) Rule.

Any additional suspect paint or surface coating materials that are revealed by repair, renovation, remodel, or demolition activities should be assumed to be lead-based paint and managed as such, until properly sampled and analyzed.

DISCLAIMERS

The findings and conclusions rendered in this report are opinions based on the scope of work authorized by the client and laboratory analysis of samples collected during this inspection. This report does not reflect variations which may exist between sampling points. These variations cannot be anticipated, nor could they be entirely accounted for, despite exhaustive additional testing. My work has been performed in accordance with generally accepted practices in the field of lead consultation.

Enclosed with this report are the following documents:

Metals Analysis of Paints (Laboratory Report)
Analysis Request Form (Chain of Custody)
CDPH Form 8552 – Lead Hazard Evaluation Report
Asbestos Analysis of Bulk Materials (Laboratory Report)
Analysis Request Form (Chain of Custody)

Inspector Credentials

STATE OF CALIFORNIA Gavin Newsom, Governor

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health-Asbestos Certification
1750 Howe Avenue, Suite 460
Sacramento, CA 95825
(916) 574-2993 Office http://www.dir.ca.gov/dosh/asbestos.html actu@dir.ca.gov

904056499C **447**

May 03, 2023

Michael H Bruffey
9517 Carmel Road
Atascadero CA 93422

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address or email w any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Kevin Graulich
Principal Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 **Michael Bruffey**	Lead Inspector/Assessor	LRC-00003723	12/19/2024

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

LA Testing
5431 Industrial Drive, Huntington Beach, CA 92649
Phone/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com hblab@latesting.com

LA Testing Order: 332401677
CustomerID: AISL42
CustomerPO:
ProjectID:

Attn: **Mike Bruffey**
Asbestos Inspections SLO
9517 Carmel Road
Atascadero, CA 93422

Phone: (805) 235-0582
Fax:
Received: 1/31/2024 10:45 AM
Collected: 1/29/2024

Project: **JACK HOUSE SLO**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
L1	1/29/2024	2/1/2024	0.2591 g	0.0080 % wt	0.14 % wt
332401677-0001	Site: WIDOW WALK 8X8" WHITE POST				
L2	1/29/2024	2/1/2024	0.2825 g	0.80 % wt	5.5 % wt
332401677-0002	Site: WIDOW WALK ROUND WHITE RAILING				
L3	1/29/2024	2/1/2024	0.3092 g	0.80 % wt	5.0 % wt
332401677-0003	Site: WIDOW WALK UNDER RAIL BLUE STRIP				
L4	1/29/2024	2/1/2024	0.2737 g	0.0080 % wt	0.12 % wt
332401677-0004	Site: WIDOW WALK RAIL EDGE				
L5	1/29/2024	2/1/2024	0.2706 g	0.80 % wt	3.5 % wt
332401677-0005	Site: WIDOW WALK TOP POST RED STRIP				
L6	1/29/2024	2/1/2024	0.2752 g	0.0080 % wt	0.019 % wt
332401677-0006	Site: WIDOW WALK TOP FLAT WH RAIL				
L7	1/29/2024	2/1/2024	0.3003 g	0.0080 % wt	0.21 % wt
332401677-0007	Site: 2ND FLOOR WHITE ORNATE RAIL				
L8	1/29/2024	2/1/2024	0.2672 g	0.0080 % wt	0.092 % wt
332401677-0008	Site: 2ND FLOOR BLUE STRIP				

Michael Chapman

Michael Chapman, Laboratory Manager
or other approved signatory

Analysis following Lead in Paint by LA Testing SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by LA Testing Huntington Beach, CA AIHA LAP, LLC-ELLAP Accredited #101650, CA ELAP 1406

Initial report from 02/05/2024 08:36:53

LA Testing

5431 Industrial Drive Huntington Beach, CA 92649

Tel/Fax: (714) 828-4999 / (714) 828-4944

http://www.LATesting.com / hblab@latesting.com

LA Testing Order:	332401673
Customer ID:	AISL42
Customer PO:	
Project ID:	

Attention:	Mike Bruffey	**Phone:**	(805) 235-0582
	Asbestos Inspections SLO	**Fax:**	
	9517 Carmel Road	**Received Date:**	01/31/2024 10:45 AM
	Atascadero, CA 93422	**Analysis Date:**	02/06/2024
		Collected Date:	01/29/2024
Project:	JACK HOUSE SLO		

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1 *332401673-0001*	WIDOWS WALK ROLLED ROOFING	Gray/Black Fibrous Heterogeneous	15% Synthetic	85% Non-fibrous (Other)	None Detected
2 *332401673-0002*	WIDOWS WALK FELT UNDER WOOD SHG	Brown/Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
3-Roofing 1 *332401673-0003*	WIDOWS WALK FLAT ROOF / LAYERS	Gray/Black Fibrous Heterogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
3-Roofing 2 *332401673-0003A*	WIDOWS WALK FLAT ROOF / LAYERS	Black Fibrous Homogeneous	18% Cellulose	82% Non-fibrous (Other)	None Detected
3-Insulation *332401673-0003B*	WIDOWS WALK FLAT ROOF / LAYERS	Brown Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
4-Mastic *332401673-0004*	MASTIC / TAR ON CHIMNEY / HATCH	Gray/Black Fibrous Heterogeneous	8% Cellulose	90% Non-fibrous (Other)	2% Chrysotile
4-Tar *332401673-0004A*	MASTIC / TAR ON CHIMNEY / HATCH				Layer Not Present
5-Mastic *332401673-0005*	TAR / MASTIC ON METAL ROOF 2ND FLR				Layer Not Present
5-Tar *332401673-0005A*	TAR / MASTIC ON METAL ROOF 2ND FLR	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
6-Mastic *332401673-0006*	TAR / MASTIC ON METAL ROOF 2ND FLR				Layer Not Present
6-Tar *332401673-0006A*	TAR / MASTIC ON METAL ROOF 2ND FLR	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 02/06/2024 18:42:38

LA Testing

5431 Industrial Drive Huntington Beach, CA 92649

Tel/Fax: (714) 828-4999 / (714) 828-4944

http://www.LATesting.com / hblab@latesting.com

LA Testing Order:	332401673
Customer ID:	AISL42
Customer PO:	
Project ID:	

Analyst(s)

Kaylin Luciani (4)

Thanh Nguyen (4)

Michael Chapman, Laboratory Manager
or Other Approved Signatory

Initial report from: 02/06/2024 18:42:38

OrderID: 332401677

Lead Chain of Custody

EMSL Order Number / Lab Use Only

#332401677

LA Testing
5431 Industrial Drive
Huntington Beach, CA 92649
PHONE: (714) 828-4999
EMAIL: huntingtonbeachlab@lates

Customer Information		Billing Information	
Customer ID:	AISL42	Billing ID:	
Company Name:	Asbestos Inspections SLO	Company Name:	Asbestos Inspections SLO
Contact Name:	Mike Bruffey	Billing Contact:	Mike Bruffey
Street Address:	9517 Carmel Road	Street Address:	9517 Carmel Road
City, State, Zip:	Atascadero CA 93422	City, State, Zip:	Atascadero CA 93422
Country:	US	Country:	US
Phone:	805-235-0582	Phone:	805-235-0582
Email(s) for Report:	bruffbruffey@gmail.com	Email(s) for Invoice:	same as

Project Information

Project Name/No:	Jack House SLO	Purchase Order:	
EMSL LIMS Project ID: (If applicable, EMSL will provide)		US State where samples collected:	CA
State of Connecticut (CT) must select project location:	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)		
Sampled By Name:	Mike Bruffey	Sampled By Signature:	
No. of Samples in Shipment	8		

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☑ 1 Week ☐ 2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

MATRIX	METHOD	INSTRUMENT	REPORTING LIMIT	SELECTION
CHIPS ☑ % by wt. ☐ ppm (mg/kg) ☐ mg/cm²	SW 846-7000B	Flame Atomic Absorption	0.008% (80ppm)	☑
*Reporting Limit based on a minimum 0.25g sample weight	SW 846-6010D*	ICP-OES	0.0004% (4ppm)	☐
AIR	NIOSH 7082	Flame Atomic Absorption	4µg/filter	☐
	NIOSH 7300M / NIOSH 7303M	ICP-OES	0.5µg/filter	☐
	NIOSH 7300M / NIOSH 7303M	ICP-MS	0.05µg/filter	☐
WIPE ☐ ASTM ☐ NON-ASTM	SW 846-7000B	Flame Atomic Absorption	10µg/wipe	☐
*If no box is checked, non-ASTM Wipe is assumed	SW 846-6010D*	ICP-OES	1.0µg/wipe	☐
TCLP	SW 846-1311 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW 846-1311 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	☐
SPLP	SW 846-1312 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW 846-1312 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	☐
TTLC	22 CCR App. II, 7000B	Flame Atomic Absorption	40mg/kg (ppm)	☐
	22 CCR App. II, SW 846-6010D*	ICP-OES	2mg/kg (ppm)	☐
STLC	22 CCR App. II, 7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	22 CCR App. II, SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	☐
Soil	SW 846-7000B	Flame Atomic Absorption	40mg/kg (ppm)	☐
	SW 846-6010D*	ICP-OES	2mg/kg (ppm)	☐
Wastewater	SM 3111B / SW 846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
Unpreserved ☐ / Preserved with HNO3 ☐ PH<2	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	☐
Drinking Water	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	☐
Unpreserved ☐ / Preserved with HNO3 ☐ PH<2	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	☐
Other:				☐

Sample Number	Sample Location	~~Volume / Area~~	Date / Time Sampled
L1	Widow Walk 8x8" White Post		1-29-24/230
L2	Widow Walk Round White Railing		
L3	Widow Walk Under Rail Blue strip		
L4	Widow Walk Rail edge		
L5	Widow Walk top Post Red strip		

Method of Shipment:	Fed Ex S.O.	Sample Condition Upon Receipt:	
Relinquished by: Mike Bruffey	Date/Time: 1-30-24/100	Received by: Jonathan Sanford (EFX)	Date/Time 1/31/24 10:45a
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-25 Lead R16 4/19/2021

*6010C Available Upon Request

☐ **AGREE TO ELECTRONIC SIGNATURE** (By checking, I consent to signing this Chain of Custody document by electronic signature.)

OrderID: 332401677

LA TESTING

Lead Chain of Custody

EMSL Order Number / Lab Use Only

#332401677

LATesting
5431 Industrial Drive

Huntington Beach, CA 92649
PHONE: (714) 828-4999
EMAIL: huntingtonbeachlab@lates

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location	~~Volume / Area~~	Date / Time Sampled
L6	Widow Walk Top Flat Wh rail		1-29-24/230
L7	2nd Floor White ornate rail		↓
L8	2nd Floor Blue strip		↓

Method of Shipment: Fed Ex S.O.		Sample Condition Upon Receipt:	
Relinquished by: Mike Bruffey MB	Date/Time: 1-30-24/100	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-25 Lead R16 4/19/2021

☐ **AGREE TO ELECTRONIC SIGNATURE** (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

OrderID: 332401677

Disclaimer

Use of this FedEx shipping label is subject to the following restrictions and conditions:

IMPORTANT! Do not duplicate this label. Each package must contain a unique tracking number in order to maintain tracking and billing integrity.

1. This label may only be used on FedEx packaging: FedEx Envelope Pack or FedEx Box. This free shipping label is not valid for use on non-standard FedEx packages, nor coolers or other large boxes.
2. Valid for shipment of the following samples only: Asbestos testing of bulk material samples, wipe/dust samples, or air sample cassettes; Lead analysis of paint chips, air samples, or wipe samples; Microbiology air samples or bulk samples, tape lift samples, and/or swab samples; Metals (Air, Chips & Wipes), IH Organics (Formaldehyde, Methamphetamine, Isocyanates, BTEX, etc.), Combustion By-Products (Soot)/Material Identification, and Silica, Respirable Dust/Total Dust.
3. This label is not valid for shipment of any sample that requires a cooler or any other sample type not specifically described herein.
4. US: The package shipment must exceed a minimum of $100 in analytical fees. If this minimum is not met, a minimum shipping fee of $25 will be added to the analysis invoice. Canada: The package shipment must exceed a minimum of $150 in analytical fees. If this minimum is not met, a minimum shipping fee of $30 will be added to the analysis invoice.
5. Not valid for the shipping of any hazardous materials or items prohibited to be shipped by these means.
6. Any additional fees added by FedEx will be charged back to the customer who initiated the shipment, including, but not limited to: Custom pickup fees from FedEx, excessive weight fees, any surcharge items, etc.
7. This label is not valid for weekend or holiday deliveries.
8. Excludes Summa Canisters, Equipment Rental and Loaner Returns.
9. Valid within the Continental United States or Canada. Label may not be utilized from US to Canada, or Canada to US.
10. Valid for only those accounts pre-approved to use this service. This courtesy shipping service may be terminated at any time by EMSL for any customer accounts that are not in good standing due to late payment /COD Status, or any other reason in the sole determination of EMSL.

OrderID: 332401673

California Customers

EMSL Order Number / Lab Use Only

#332401673

LATesting
5431 Industrial Drive

Huntington Beach, CA 92649
PHONE: (714) 828-4999
EMAIL: huntingtonbeachlab@la

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information

Customer ID:	AISL42
Company Name:	Asbestos Inspections SLO
Contact Name:	Mike Bruffey
Street Address:	9517 Carmel Road
City, State, Zip:	Atascadero CA 93422
Country:	US
Phone:	805-235-0582
Email(s) for Report:	bruffbruffey@gmail.com

Billing Information

Billing ID:	
Company Name:	Asbestos Inspections SLO
Billing Contact:	Mike Bruffey
Street Address:	9517 Carmel Road
City, State, Zip:	Atascadero CA 93422
Country:	US
Phone:	805-235-0582
Email(s) for Invoice:	same as

Project Information

Project Name/No:	Jack House SLO
Purchase Order:	
EMSL LIMS Project ID: (If applicable, EMSL will provide)	
US State where samples collected:	CA
State of Connecticut (CT) must select project location:	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Sampled By Name:	Mike Bruffey
Sampled By Signature:	Mike Bruffey
No. of Samples in Shipment	6

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 4-4.5 Hour AHERA ONLY ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☑ 1 Week ☐ 2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.

Test Selection

PCM Air
- ☐ NIOSH 7400
- ☐ NIOSH 7400 w/ 8hr. TWA

PLM - Bulk (reporting limit)
- ☑ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%) ☐ 1,200 (<0.08%)
- POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%) ☐ 1,200 (<0.08%)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ CARB Modified AHERA
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312*

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

TEM - Settled Dust
- ☐ Microvac - ASTM D5755
- ☐ Wipe - ASTM D6480
- ☐ Qualitative via Filtration Prep
- ☐ Qualitative via Drop Mount Prep

Soil - Rock - Vermiculite (reporting limit)*
- ☐ PLM CARB 435 - Level A (<0.25%)
- ☐ PLM CARB 435 - Level B (<0.1%)
- ☐ TEM CARB 435 - Level B (<0.1%)
- ☐ TEM CARB 435 - Level C (<0.01%)
- ☐ CARB Guidance Compliance Prep
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.25%)
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.1%)
- ☐ TEM EPA 600/R-93/116 with milling prep (<0.1%)

Other

*Please call with your project-specific requirements.

☐ Positive Stop - Clearly Identified Homogeneous Areas (HA) | Filter Pore Size (Air Samples) ☐ 0.8um ☐ 0.45um

Sample Number	Sample Location / Description	~~Volume, Area or Homogeneous Area~~	Date / Time Sampled (~~Air Monitoring Only~~)
1	Widows Walk Rolled roofing		1-29-24/230
2	Widows Walk Felt under wood shg		
3	Widows Walk Flat roof/layers		
4	Mastic/tar on Chimney/Hatch		
5	Tar/mastic on metal roof 2nd Flr		
6	Tar/mastic on metal roof 2nd Flr		

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:	Fed Ex SO	Sample Condition Upon Receipt:	
Relinquished by:	Mike Bruffey	Date/Time: 1-30-24/100	Received by: Jonathan Santoro (EFX)	Date/Time: 1/31/24 10:45a
Relinquished by:		Date/Time:	Received by:	Date/Time

Controlled Document - COC-51 Asbestos CA Clients R3 03/24/2021

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OrderID: 332401673

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IMPORTANT! Do not duplicate this label. Each package must contain a unique tracking number in order to maintain tracking and billing integrity.

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2. Valid for shipment of the following samples only: Asbestos testing of bulk material samples, wipe/dust samples, or air sample cassettes; Lead analysis of paint chips, air samples, or wipe samples; Microbiology air samples or bulk samples, tape lift samples, and/or swab samples; Metals (Air, Chips & Wipes), IH Organics (Formaldehyde, Methamphetamine, Isocyanates, BTEX, etc.), Combustion By-Products (Soot)/Material Identification, and Silica, Respirable Dust/Total Dust.
3. This label is not valid for shipment of any sample that requires a cooler or any other sample type not specifically described herein.
4. US: The package shipment must exceed a minimum of $100 in analytical fees. If this minimum is not met, a minimum shipping fee of $25 will be added to the analysis invoice. Canada: The package shipment must exceed a minimum of $150 in analytical fees. If this minimum is not met, a minimum shipping fee of $30 will be added to the analysis invoice.
5. Not valid for the shipping of any hazardous materials or items prohibited to be shipped by these means.
6. Any additional fees added by FedEx will be charged back to the customer who initiated the shipment, including, but not limited to: Custom pickup fees from FedEx, excessive weight fees, any surcharge items, etc.
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10. Valid for only those accounts pre-approved to use this service. This courtesy shipping service may be terminated at any time by EMSL for any customer accounts that are not in good standing due to late payment /COD Status, or any other reason in the sole determination of EMSL.

State of California—Health and Human Services Agency

California Department of Public Health

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 1-29-24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
536 Marsh Street	San Luis Obispo	San Luis Obispo	93401

Construction date (year) of structure	Type of structure	Children living in structure?
1882	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other Historical Building	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
City of San Luis Obispo	805-781-4154

Address [number, street, apartment (if applicable)]	City	State	Zip Code
990 Palm Street	San Luis Obispo	CA	93401

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☐ No lead-based paint detected ☑ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☑ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other _____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michael Bruffey	805-235-0582

Address [number, street, apartment (if applicable)]	City	State	Zip Code
9517 Carmel Road	Atascadero	CA	93422

CDPH certification number	Signature	Date
LRC-00003723		2-7-24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

APPENDIX E – SAFTEY MANAGER REVIEW AND RECOMMENDATION

Occupational, Health and Safety

RE: 536 Marsh, Jack House Widow's Walk Railing Restoration – Lead Paint Remediation

Jake Parsons, Safety Manager

Attn: Sandra Golonka, Public Works Engineer

Scope (per 100% drawings, page 13, #12)

(e) decorative wood roof railing to be rehabilitated with railing to be disassembled into individual elements & tagged for specific location in assembly, and all paint to be stripped, method to be determined by contractor per specifications. After paint is stripped, prepare a summary list of historic rail elements that will need to be replaced in-kind, due to deterioration, and submit to city. All replacement elements shall be fabricated using the shape and profile of the remaining (e) elements, that are to be re-installed, as templates. dutchman repairs should be used before full replacement of element. epoxy wood patching limited to 1 cubic inch of volume per patch following manufacturer's minimum thickness edge. all replacement wood must be naturally weather & pest resistant, no exposed ptdf. see sht A8.03

Summary of Recommendations

Contractors shall uphold all work practices which are compliant with the EPA, HUD, Federal Government and Department of Toxic Substance's requirements for work with lead-paint hazards.

The contractor shall reference and apply Federal, State and Local guidelines with specific attention to the following:

1) notifications to general public and posting of appropriate signage
2) isolation of worksite, by locked means where needed to restrict the entry of the general public and unknown persons,
3) isolation of all potential "dust hazard" entry and exit points,
4) dust control at all times: wetting and saturation methods preferred (HUD Guidelines, Chapter 12: B) including the re-capture of hazardous wastewater,
5) wrapping and containing components (HUD Guidelines, Chapter 12: B)
6) securing of worksite at all times, including locked-out locations for hazardous waste accumulation (HUD Guidelines, Chapter 12: 2)
7) appropriate use of tools and reduction of means when possible, to reduce the disturbance of lead-based paint hazards
8) donning of sufficient personal protective equipment including respiratory protection (29 CFR 1926.62 Appendix B and Chapter 9)
9) identification of licensed waste hauler *prior to the start of work*
10) identification of certified disposal site *prior to the start of work*
11) remediation of all wastes as "hazardous," appropriate and secure containment, waste hauling and documentation by use of a uniform hazardous waste manifest,
12) sufficient daily cleanliness including but not limited to
    a. decontamination stations for employees (HUD Guidelines, Chapter 9: 13)

b. waste accumulation site for disposable PPE
c. emergency eye-wash station(s) (HUD Guidelines, Chapter 12: 9)

Per the expectation of regulatory oversite on this matter 40 CFR §745.65

Work practice requirements. Applicable certification, occupant protection, and clearance requirements and work practice standards are found in regulations issued by EPA at 40 CFR part 745, subpart L and in regulations issued by the Department of Housing and Urban Development (HUD) at 24 CFR part 35, subpart R. The work practice standards in those regulations do not apply when treating paint-lead hazards of less than:

(1) Two square feet of deteriorated lead-based paint per room or equivalent,

(2) Twenty square feet of deteriorated paint on the exterior building, or

(3) Ten percent of the total surface area of deteriorated paint on an interior or exterior type of component with a small surface area.

Per the assumption of lead-paint hazard 40 CFR §745.65

A paint-lead hazard is any of the following:

(1) Any lead-based paint on a friction surface that is subject to abrasion and where the lead dust levels on the nearest horizontal surface underneath the friction surface (e.g., the window sill, or floor) are equal to or greater than the dust-lead hazard levels identified in paragraph (b) of this section.

(2) Any damaged or otherwise deteriorated lead-based paint on an impact surface that is caused by impact from a related building component (such as a door knob that knocks into a wall or a door that knocks against its door frame.

40 CFR §745.85 Work Practice Standard

Exterior renovations. The firm must:

(A) Close all doors and windows within 20 feet of the renovation. On multi-story buildings, close all doors and windows within 20 feet of the renovation on the same floor as the renovation, and close all doors and windows on all floors below that are the same horizontal distance from the renovation.

(B) Ensure that doors within the work area that will be used while the job is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

(C) Cover the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line

prevents 10 feet of such ground covering. Ground containment measures may stop at the edge of the vertical barrier when using a vertical containment system.

(D) If the renovation will affect surfaces within 10 feet of the property line, the renovation firm must erect vertical containment or equivalent extra precautions in containing the work area to ensure that dust and debris from the renovation does not contaminate adjacent buildings or migrate to adjacent properties. Vertical containment or equivalent extra precautions in containing the work area may also be necessary in other situations in order to prevent contamination of other buildings, other areas of the property, or adjacent buildings or properties.

(3) ***Prohibited and restricted practices.*** The work practices listed below are prohibited or restricted during a renovation as follows:

(i) Open-flame burning or torching of painted surfaces is prohibited.

(ii) The use of machines designed to remove paint or other surface coatings through high speed operation such as sanding, grinding, power planning, needle gun, abrasive blasting, or sandblasting, is prohibited on painted surfaces unless such machines have shrouds or containment systems and are equipped with a HEPA vacuum attachment to collect dust and debris at the point of generation. Machines must be operated so that no visible dust or release of air occurs outside the shroud or containment system.

(iii) Operating a heat gun on painted surfaces is permitted only at temperatures below 1,100 degrees Fahrenheit.

(4) ***Waste from renovations.***

(i) Waste from renovation activities must be contained to prevent releases of dust and debris before the waste is removed from the work area for storage or disposal. If a chute is used to remove waste from the work area, it must be covered.

(ii) At the conclusion of each work day and at the conclusion of the renovation, waste that has been collected from renovation activities must be stored under containment, in an enclosure, or behind a barrier that prevents release of dust and debris out of the work area and prevents access to dust and debris.

(iii) When the firm transports waste from renovation activities, the firm must contain the waste to prevent release of dust and debris.

(5) ***Cleaning the work area.*** After the renovation has been completed, the firm must clean the work area until no dust, debris or residue remains.

(i) ***Interior and exterior renovations.*** The firm must:

(A) Collect all paint chips and debris and, without dispersing any of it, seal this material in a heavy-duty bag.

(B) Remove the protective sheeting. Mist the sheeting before folding it, fold the dirty side inward, and either tape shut to seal or seal in heavy-duty bags. Sheeting used to isolate contaminated rooms from non-contaminated rooms must remain in place until after the cleaning and removal of other sheeting. Dispose of the sheeting as waste.

(ii) ***Additional cleaning for interior renovations.*** The firm must clean all objects and surfaces in the work area and within 2 feet of the work area in the following manner, cleaning from higher to lower:

(A) ***Walls.*** Clean walls starting at the ceiling and working down to the floor by either vacuuming with a HEPA vacuum or wiping with a damp cloth.

(B) ***Remaining surfaces.*** Thoroughly vacuum all remaining surfaces and objects in the work area, including furniture and fixtures, with a HEPA vacuum. The HEPA vacuum must be equipped with a beater bar when vacuuming carpets and rugs.

(C) Wipe all remaining surfaces and objects in the work area, except for carpeted or upholstered surfaces, with a damp cloth. Mop uncarpeted floors thoroughly, using a mopping method that keeps the wash water separate from the rinse water, such as the 2-bucket mopping method, or using a wet mopping system.

Standards for post-renovation cleaning verification —

(1) ***Interiors.***

(i) A certified renovator must perform a visual inspection to determine whether dust, debris or residue is still present. If dust, debris or residue is present, these conditions must be removed by re-cleaning and another visual inspection must be performed.

(ii) After a successful visual inspection, a certified renovator must:

(A) Verify that each windowsill in the work area has been adequately cleaned, using the following procedure.

(*1*) Wipe the windowsill with a wet disposable cleaning cloth that is damp to the touch. If the cloth matches or is lighter than the cleaning verification card, the windowsill has been adequately cleaned.

(*2*) If the cloth does not match and is darker than the cleaning verification card, re-clean the windowsill as directed in paragraphs (a)(5)(ii)(B) and (a)(5)(ii)(C) of this section, then either use a new cloth or fold the used cloth in such a way that an unused surface is exposed, and wipe the surface again. If the cloth matches or is lighter than the cleaning verification card, that windowsill has been adequately cleaned.

(*3*) If the cloth does not match and is darker than the cleaning verification card, wait for 1 hour or until the surface has dried completely, whichever is longer.

(*4*) After waiting for the windowsill to dry, wipe the windowsill with a dry disposable cleaning cloth. After this wipe, the windowsill has been adequately cleaned.

(B) Wipe uncarpeted floors and countertops within the work area with a wet disposable cleaning cloth. Floors must be wiped using an application device with a long handle and a head to which the cloth is attached. The cloth must remain damp at all times while it is being used to wipe the surface for post-renovation cleaning verification. If the surface within the work area is greater than 40 square feet, the surface within the work area must be divided into roughly equal sections that are each less than 40 square feet. Wipe each such section separately with a new wet disposable cleaning cloth. If the cloth used to wipe each section of the surface within the work area matches the cleaning verification card, the surface has been adequately cleaned.

(*1*) If the cloth used to wipe a particular surface section does not match the cleaning verification card, re-clean that section of the surface as directed in paragraphs (a)(5)(ii)(B) and (a)(5)(ii)(C) of this section, then use a new wet disposable cleaning cloth to wipe that section again. If the cloth matches the cleaning verification card, that section of the surface has been adequately cleaned.

(*2*) If the cloth used to wipe a particular surface section does not match the cleaning verification card after the surface has been re-cleaned, wait for 1 hour or until the entire surface within the work area has dried completely, whichever is longer.

(*3*) After waiting for the entire surface within the work area to dry, wipe each section of the surface that has not yet achieved post-renovation cleaning verification with a dry disposable cleaning cloth. After this wipe, that section of the surface has been adequately cleaned.

(iii) When the work area passes the post-renovation cleaning verification, remove the warning signs.

(2) ***Exteriors.*** A certified renovator must perform a visual inspection to determine whether dust, debris or residue is still present on surfaces in and below the work area, including windowsills and the ground. If dust, debris or residue is present, these conditions must be eliminated and another visual inspection must be performed. When the area passes the visual inspection, remove the warning signs.

(c) ***Optional dust clearance testing.*** Cleaning verification need not be performed if the contract between the renovation firm and the person contracting for the renovation or another Federal, State, Territorial, Tribal, or local law or regulation requires:

(1) The renovation firm to perform dust clearance sampling at the conclusion of a renovation covered by this subpart.

(2) The dust clearance samples are required to be collected by a certified inspector, risk assessor or dust sampling technician.

(3) The renovation firm is required to re-clean the work area until the dust clearance sample results are below the clearance standards in § 745.227(e)(8) or any applicable State, Territorial, Tribal, or local standard.

40 CFR §745.86 Recordkeeping and Reporting Requirements

Firms performing renovations must retain and, if requested, make available to EPA all records necessary to demonstrate compliance with this subpart for a period of 3 years following completion of the renovation. This 3-year retention requirement does not supersede longer obligations required by other provisions for retaining the same documentation, including any applicable State or Tribal laws or regulations.

(b) Records that must be retained pursuant to paragraph (a) of this section shall include (where applicable):

(1) Records or reports certifying that a determination had been made that lead-based paint was not present on the components affected by the renovation, as described in § 745.82(a). These records or reports include:

(i) Reports prepared by a certified inspector or certified risk assessor (certified pursuant to either Federal regulations at § 745.226 or an EPA-authorized State or Tribal certification program).

(ii) Records prepared by a certified renovator after using EPA-recognized test kits, including an identification of the manufacturer and model of any test kits used, a description of the components that were tested including their locations, and the result of each test kit used.

(iii) Records prepared by a certified renovator after collecting paint chip samples, including a description of the components that were tested including their locations, the name and address of the NLLAP-recognized entity performing the analysis, and the results for each sample.

(2) Signed and dated acknowledgments of receipt as described in § 745.84(a)(1)(i), (a)(2)(i), (b)(1)(i), (c)(1)(i)(A), and (c)(1)(ii)(A).

(3) Certifications of attempted delivery as described in § 745.84(a)(2)(i) and (c)(1)(ii)(A).

(4) Certificates of mailing as described in § 745.84(a)(1)(ii), (a)(2)(ii), (b)(1)(ii), (c)(1)(i)(B), and (c)(1)(ii)(B).

(5) Records of notification activities performed regarding common area renovations, as described in § 745.84(b)(3) and (b)(4), and renovations in child-occupied facilities, as described in § 745.84(c)(2).

(6) Documentation of compliance with the requirements of § 745.85, including documentation that a certified renovator was assigned to the project, that the certified renovator provided on-the-job training for workers used on the project, that the certified renovator performed or directed workers who performed all of the tasks described in § 745.85(a), and that the certified renovator performed the post-renovation cleaning verification described in § 745.85(b). If the renovation firm was unable to comply with all of the requirements of this rule due to an emergency as defined in § 745.82, the firm must document the nature of the emergency and the provisions of the rule that were not followed. This documentation must include a copy of the certified renovator's training certificate, and a certification by the certified renovator assigned to the project that:

(i) Training was provided to workers (topics must be identified for each worker).

(ii) Warning signs were posted at the entrances to the work area.

(iii) If test kits were used, that the specified brand of kits was used at the specified locations and that the results were as specified.

(v) The work area was contained by:

(A) Removing or covering all objects in the work area (interiors).

(B) Closing and covering all HVAC ducts in the work area (interiors).

(C) Closing all windows in the work area (interiors) or closing all windows in and within 20 feet of the work area (exteriors).

(D) Closing and sealing all doors in the work area (interiors) or closing and sealing all doors in and within 20 feet of the work area (exteriors).

(E) Covering doors in the work area that were being used to allow passage but prevent spread of dust.

(F) Covering the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area 6 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater (interiors) or covering the ground with plastic sheeting or other disposable impermeable material anchored to the building extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground covering, weighted down by heavy objects (exteriors).

(G) Installing (if necessary) vertical containment to prevent migration of dust and debris to adjacent property (exteriors).

(iv) If paint chip samples were collected, that the samples were collected at the specified locations, that the specified NLLAP-recognized laboratory analyzed the samples, and that the results were as specified.

(vi) Waste was contained on-site and while being transported off-site.

(vii) The work area was properly cleaned after the renovation by:

(A) Picking up all chips and debris, misting protective sheeting, folding it dirty side inward, and taping it for removal.

(B) Cleaning the work area surfaces and objects using a HEPA vacuum and/or wet cloths or mops (interiors).

(viii) The certified renovator performed the post-renovation cleaning verification (the results of which must be briefly described, including the number of wet and dry cloths used).

(c)

(1) When the final invoice for the renovation is delivered or within 30 days of the completion of the renovation, whichever is earlier, the renovation firm must provide information pertaining to compliance with this subpart to the following persons:

(i) The owner of the building; and, if different,

(ii) An adult occupant of the residential dwelling, if the renovation took place within a residential dwelling, or an adult representative of the child-occupied facility, if the renovation took place within a child-occupied facility.

(2) When performing renovations in common areas of multi-unit target housing, renovation firms must post the information required by this subpart or instructions on how interested occupants can obtain a copy of this information. This information must be posted in areas where it is likely to be seen by the occupants of all of the affected units.

(3) The information required to be provided by paragraph (c) of this section may be provided by completing the sample form titled “Sample Renovation Recordkeeping Checklist” or a similar form containing the test kit information required by § 745.86(b)(1)(ii) and the training and work practice compliance information required by § 745.86(b)(6).

(d) If dust clearance sampling is performed in lieu of cleaning verification as permitted by § 745.85(c), the renovation firm must provide, when the final invoice for the renovation is

delivered or within 30 days of the completion of the renovation, whichever is earlier, a copy of the dust sampling report to:

(1) The owner of the building; and, if different,

(2) An adult occupant of the residential dwelling, if the renovation took place within a residential dwelling, or an adult representative of the child-occupied facility, if the renovation took place within a child-occupied facility.

(3) When performing renovations in common areas of multi-unit target housing, renovation firms must post these dust sampling reports or information on how interested occupants of the housing being renovated can obtain a copy of the report. This information must be posted in areas where they are likely to be seen by the occupants of all of the affected units

40 CFR §745.87 Enforcement and Inspection

Failure or refusal to comply with any provision of this subpart is a violation of TSCA section 409 (15 U.S.C. 2689).

(b) Failure or refusal to establish and maintain records or to make available or permit access to or copying of records, as required by this subpart, is a violation of TSCA sections 15 and 409 (15 U.S.C. 2614 and 2689).

(c) Failure or refusal to permit entry or inspection as required by 40 CFR 745.87 and TSCA section 11 (15 U.S.C. 2610) is a violation of sections 15 and 409 (15 U.S.C. 2614 and 2689).

(d) Violators may be subject to civil and criminal sanctions pursuant to TSCA section 16 (15 U.S.C. 2615) for each violation.

(e) Lead-based paint is assumed to be present at renovations covered by this subpart. EPA may conduct inspections and issue subpoenas pursuant to the provisions of TSCA section 11 (15 U.S.C. 2610) to ensure compliance with this subpart.

Regulatory References

The HUD Guidelines for the Evaluation and Control of Lead-based Paint in Housing

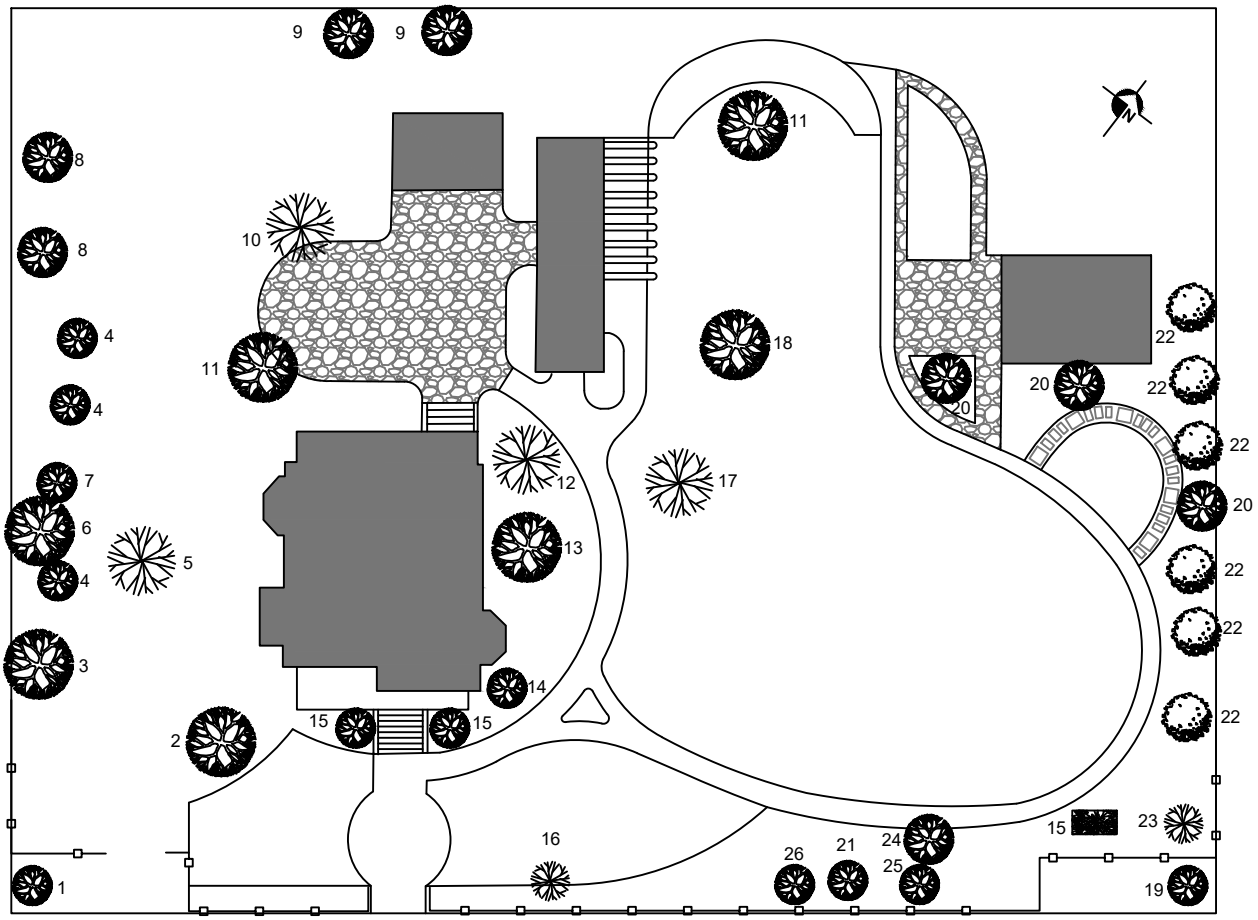
40 CFR §745 Lead Based Paint Hazards

29 CFR 1910.120 Subpart H Hazardous Materials

29 CFR 1926.65 Hazardous Waste Operations and Emergency Response

Toxic Substance Control Act (Title 15 U.S.C 2682 and 2686)

APPENDIX F – HISTORICAL PLANTING MAP



MARSH STREET

	Common Name	Botanical Name		Common Name	Botanical Name
1.	Horse Chestnut	Aesculus Carnea	14.	Black Magnolia	Magnolia Nigra
2.	Southern Magnolia	Magnolia Grandiflora	15.	Japanese Boxwood	Buxus Microphylla Japonica
3.	California White Oak	Quercus Lobata	16.	Jacaranda	Jacaranda Mimosifolia
4.	Tobira	Pittosporum Tobira	17.	Japanese Maple	Acer Palmatum
5.	American Sweet Gum	Liquidambar Styraciflua	18.	Saucer Magnolia	Magnolia Soulangeana
6.	White Dove Tree	Davidia Involucrata	19.	Crepe Myrtle	Lagerstroemia Indica
7.	Fruiting Quince	Cydonia Oblonga	20.	Pineapple Guava	Feijoa Sellowiana
8.	Olive	Olea Europaea	21.	Washington Navel Orange	Citrus Sinensis 'Washington'
9.	Victorian Box	Pittosporum Undulatum	22.	Coast Redwood	Sequoia Sempervirens
10.	Pecan	Carya Illinoinensis	23.	Maiden Hair Tree	Ginkgo Biloba 'Fairmount'
11.	Avocado	Persea Americana	24.	Grapefruit	Citrus Paradisi 'Marsh'
12.	Port Orford Cedar	Chamaecyparis Lawsoniana	25.	Blue Potato Bush	Solanum Rantonnetii
13.	Pummelo (Shaddock)	Citrus Maxima	26.	Red Cestrum	Cestrum Elegans

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APPENDIX G – ARBOR PHOTOS