LAS POSITAS COLLEGE

November 13, 2025

ROOF REPLACEMENT SPECIFICATIONS

Las Positas College – Building 400

3000 Campus Hill Drive. Livermore CA 94551

SKYLINE ENGINEERING
ENGINEERING SERVICES FOR THE BUILDING ENVELOPE

8100 Wild Horse Road
Salinas CA 93907
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SECTION 00 24 00
PROCUREMENT SCOPE
(Master Scope of Work)

A. City/County permits: Contractor shall be responsible for obtaining local permits if and when required for this project.

B. Remove existing roofing systems, insulation, and flashings in accordance with section 02 41 19.13. Selective Building Demolition.

C. Provide odor control measures at all air intakes as specified in section 07 54 00 Thermoplastic Membrane Roofing.

D. Inspect decking for damage. With owner approval, repair or replace decking as specified in section 06 10 00 Rough Carpentry.

E. Install crickets on the high sides of all curbs as specified in section 07 54 00 Thermoplastic Membrane Roofing.

F. Mechanically attach R10 isocyanurate insulation and adhere ¼" approved coverboard as specified in section 07 54 00 Thermoplastic Membrane Roofing.

G. Adhere specified 80 mil fleece-back Thermoplastic membrane as specified in section 07 54 00 Thermoplastic Membrane Roofing.

H. Install walk pads from roof access points to all serviceable equipment as specified in section 07 54 00 Thermoplastic Membrane. Contractor shall include 250 linear feet of walk pad installation in the base bid.

I. Construct new support boxed curbs under HVAC units as shown in the detail drawings and described in section 06 10 00 Rough Carpentry.

J. Perimeter and projection flashings:

   1. Provide all flashing and penetration details in accordance with the detail drawings and manufacturer guidelines as specified in section 07 54 00 Thermoplastic Membrane Roofing.

   2. Drawings included with these specifications are not meant to accurately depict substrate conditions. They are meant to provide NRCA guidelines for basic flashing installation according to the system specified.

   3. If a manufacturer standard and required detail differs from that shown on the project detail drawings included in these specifications, contractor shall submit manufacturer approved drawing to the Owner and Engineer for approval. If the manufacturer requirements for a flashing detail is less stringent than those shown in the project drawings, the more stringent flashing detail shall govern with the approval of the manufacturer providing the warranty for this project.

K. Provide all work as specified in the following sections. Review scope of work under each of these sections:

1. 024119.13 Selective Building Demolition
2. 028300 Lead Remediation
3. 061000 Rough Carpentry
4. 071500 Sheet Metal Waterproofing
5. 075400 Thermoplastic membrane Roofing

L. Provide owner with a five (5) year contractor guarantee as specified in section 07 54 00 Thermoplastic Membrane Roofing.

M. Provide owner with a thirty (30) year no-dollar-limit manufacturer warranty covering labor, materials, and metal flashings as specified in section 07 54 00 Thermoplastic Membrane Roofing.

N. Provide any other warranty or guarantee as required by the specification sections listed above.

END OF SECTION

SECTION 024119.13
SELECTIVE BUILDING DEMOLITION
(Roof Demolition)

PART I – GENERAL

1.01 SCOPE OF WORK:

A. Remove and dispose of existing foam roofing, built-up roofing system, insulation and all associated base flashings and metal projection and perimeter flashings.

B. Comply with District recommendations for setup of debris removal boxes, chutes and dumpsters.

C. Protect adjacent surfaces from damage during removal.

D. Where specified, remove and dispose of existing rooftop equipment not in use. Check with District to verify what equipment is to be removed.

E. All hazardous waste shall be removed in accordance with all Local, State, Federal, and District requirements. Hazardous waste removal is not part of this section.

PHOTOS OF EXISTING CONDITIONS

This core cut was taken near the drain.

This core cut was taken near the ridge. It looks like there may be fiberglass insulation.

1.02 REGULATIONS

A. Comply with all requirements as set forth in the California Building Code.

B. Comply with section 5.408 of the California Building Code as it pertains to construction waste reduction, disposal and recycling.

1.03 GENERAL:

A. During all phases of work, contractor shall comply with all applicable sections of the State of California Code of Regulation (CCR), Industrial Safety Orders (Title 8), as well as Federal and State of California Occupational Safety and Health Administration (OSHA) regulations, including the Hazardous Waste Operations and Emergency Response Regulation (Title 8, Section 5192 and 29 CFR 1910.120).

B. All project staging shall have the approval of the District's Representative.

PART 2 – PRODUCTS

NONE

PART 3 – EXECUTION

3.01 EXAMINATION:

A. Survey existing conditions to determine extent of demolition required.

B. Arrange operations to reveal concealed structural conditions for examination and verification before removal or demolition.

C. Verify actual conditions to determine whether removal or demolition will result in structural deficiency, overloading, failure or unplanned collapse.

D. Items to remain shall be protected against damage during the demolition operations.

E. Demolish and remove existing construction only to the extent required by the new construction and as indicated.

F. Perform selective demolition using methods which are least likely to damage work to remain and which provide proper surfaces for patching.

G. Promptly remove all debris to avoid excessive loads on supporting walls, floors, and framing.

H. Remove debris from District property on a daily basis to a legal disposal site.

3.02 UNIDENTIFIED MATERIALS:

A. If the contractor in the course of normal inspections identifies any unidentified items, including materials that may contain asbestos or any other potentially hazardous substances that will (or may) require additional demolition and removal other than as required by this contract, the contractor shall immediately report to the project engineer.

B. The District will arrange for necessary testing and analysis of unidentified materials and will provide instructions to the contractor regarding the removal, handling, storage, transport and disposal of the materials.

3.03 DUST CONTROL:

A. Accomplish demolition and removal with the minimum accumulation of dust and debris.

B. Work shall proceed in such a manner as to minimize the spread of dust and flying debris.

3.04 PROTECTION:

A. Provide for the protection of persons passing around and through the area of demolition.

B. Provide protective measures to ensure free and safe passage of persons to and from occupied areas.

C. Execute demolition work in a manner that will ensure the safety of adjacent property and persons occupying such property against any damages or injuries which might occur from falling debris, unprotected excavations, holes, voids, etc. Airborne residue or other causes; and so as not to interfere with the use of adjacent public and private property of the free and safe passage to and from the same.

D. Take all necessary precautions to prevent damage to any existing construction scheduled to remain, whether located on the site or on adjacent property.

E. Protect existing walls, floors and other new or existing work including finishes from damage during the demolition process.

F. Any item damaged or disturbed which was required to remain in place shall be replaced, repaired, or reset to the satisfaction of the District's Representative at no cost to the District.

G. Contractor shall monitor weather predictions and cease work when rain or heavy fog is forecast.

3.05 DISPOSAL:

A. Disposal facilities shall be in compliance with all federal and state regulations. Applicable regional and local laws, rules and regulations shall be those of the government or quasi-governmental agencies, or other entities having jurisdiction at the disposal facility.

B. Disposal of any material as non-hazardous waste shall not relieve the contractor from complying with the requirements of the contract documents and the requirements of all federal, state, regional and local laws, rules, and regulations regarding the removal and transport of materials as specified.

3.06 CLEANUP:

A. Inspect existing surfaces or structures adjacent to demolition and removal operations, including surfaces or structures on adjacent public or private property for damage and stains. Repair or clean existing surfaces or structures not indicated to be removed including surfaces or structures on adjacent public or private property prior to the completion of the work at no additional cost.

B. Keep the project site clear of all debris resulting from demolition and removals operations and remove all debris from the site on a daily basis during the progress of the work. The cost of removal, hauling, and dumping shall be borne by the contractor.

3.07 UTILITY SERVICES:

A. Maintain existing utilities, keep in service and protect against damage during demolition operations.

B. Do not interrupt existing utilities servicing occupied or used facilities, except when authorized in writing by District's Representative. Provide temporary services during interruptions to existing utilities as acceptable to District.

END OF SECTION

SECTION 02 83 00
LEAD REMEDIATION

PART 1 – GENERAL

1.01 SECTION CONTENTS

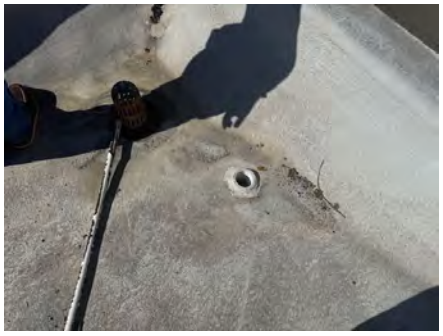
A. This section specifies the methods, procedures, and requirements related to the removal and disposal of solid lead flashing including, but not limited to:

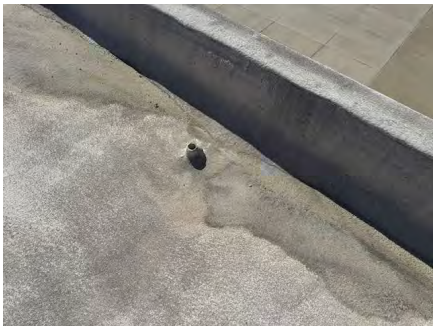
1. Regulatory requirements
2. Submittals
3. Personal protective measures
4. Execution
5. Inspections
6. Waste handling and disposal

1.02 SCOPE OF WORK

A. Skyline Engineering (Skyline) conducted limited paint chip sampling from a painted building component on the roof at Las Positas College Building 400, 3033 Collier Canyon Road in Livermore. A total of one paint chip sample was collected and did not have any detectable amounts of lead. However, flashing was assumed to be of solid lead. If additional materials are to be disturbed or if suspect lead-containing materials that were not tested will be disturbed, the Contractor will be responsible for treating those materials as lead-containing unless testing by the Contractor proves otherwise. The Contractor will be responsible for complying with this section in the handling and disposal of this lead containing paint. The painted building component that was found to be lead-containing is listed below:

1. Assumed solid lead flashing on pipes and at drain areas.





B. In accordance with all drawings, specifications and instructions, Contractor shall furnish all labor, transportation, materials, supervision, equipment, insurance, taxes, overhead and all other items of expense, or services necessary for the removal and disposal, or encapsulating, of building components with assumed solid lead necessary for completing the Las Positas College Building 400 Re-roof project. These components will be either removed and disposed of or encapsulated as directed in this contract document or on the contract drawings.

C. Briefly, and without force and effect upon the contract documents, the work of the Contract can be summarized as follows:

1. The removal and disposal, or encapsulating, of all or portions of the lead flashings - refer to Plan Drawings or the Procurement Scope of Work.

1.03 POTENTIAL LEAD HAZARD

A. Significant lead exposure may result from activities such as demolition of components, scraping, sanding, or grinding lead-based paint, abrasive blasting of surface coatings, welding, torch cutting, or related procedures. Where in performance of the work specified herein, a lead exposure is potential, strict adherence to the measures and procedures of these specifications shall be mandatory.

1.04 REGULATIONS

A. The Contractor shall comply with the requirements of the following regulations and guidelines governing lead removal and disposal, as well as other applicable federal, state, and local government regulations. The regulations and/or guidelines listed herein are incorporated by reference.

Code of Federal Regulations (CFR)
29 CFR 1910.1025
29 CFR 1926, Construction Standards
29 CFR 1926.62, Lead in Construction Standard
40 CFR Part 50.12, Ambient Air Quality Standard for Lead
40 CFR Parts 261, 265, and 268, Hazardous Waste Management
49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

California Code of Regulations (CCR)
8 CCR Division 1, Chapter 4, Subchapter 4, Construction Safety Orders
8 CCR 1532.1, Lead in Construction Standard
8 CCR 5144, Respiratory Protection

22 CCR Divisions 4 and 4.5, Hazardous Waste

1.05 DEFINITIONS

A. General: Definitions contained in this Section are not necessarily complete, but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.

1. **Abatement**: means the removal or covering of paint, plaster or other material containing lead-based paint from interior or exterior surfaces.

2. **Action Level**: An airborne concentration of 2 micrograms per cubic meter ($2\mu g/m^3$) of air as an eight (8) hour time weighted average (TWA) as covered by OSHA regulations 29 CFR 1926.62 and Cal-OSHA Title 8, Section 1532.1.

3. **Air Monitoring**: The process of measuring the lead levels of a specific volume of air.

4. **Authorized Visitor**: The District, testing lab personnel, or a representative of any federal, state and local regulatory or other agency having authority over the project.

5. **Breathing Zone**: A hemisphere forward of the shoulders with a radius of approximately 6 inches to 9 inches.

6. **Certified Industrial Hygienist (C.I.H.)**: A person certified by the American Board of Industrial Hygiene and qualified by training and/or experience to specify measures for the recognition, evaluation, and control of occupational health hazards.

7. **Construction Barrier**: Demarcation of the work area limiting access by unauthorized personnel.

8. **Disposal Bag**: A 6mil thick leak-tight plastic bag used for transporting lead waste from work area to disposal site.

9. **Elevated Blood Lead Level**: Means a blood lead concentration equal to or greater than ten (10) micrograms per deciliter (ug/dl).

10. **Encapsulation**: Involves resurfacing or covering surfaces, and sealing or caulking with durable materials, so as to prevent or control chalking, flaking lead-containing substances from entering the environment.

11. **Enclosure**: The construction of an air-tight, impermeable, permanent barrier around lead-containing material to control the release of lead dust into the air.

12. **Environmental Consultant**: The Environmental Consultant is Skyline Engineering, Inc. The Environmental Consultant will represent the District on issues relating to the project design and the scope of work as defined by this specification.

13. **Filter**: A media component used in respirators to remove solid or liquid particles from the inspired air.

14. **Final Inspection**: Inspection by a qualified inspector, industrial hygienist, or local public health official to determine whether removal and cleanup are complete.

15. **Hazardous Waste**: As defined in Resource Conservation Recovery Act (RCRA) the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. In addition, Hazardous Waste also refers to waste as described by the California Department of Toxics and Substance Control (Title 22).

16. **HEPA Filter**: A High Efficiency Particulate Air filter capable of trapping and retaining 99.97% of particles greater than 0.3 microns in diameter.

17. **HEPA Filter Vacuum Collection Equipment** (or vacuum cleaner): High Efficiency Particulate Air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining 99.97% of particles of 0.3 microns in diameter or larger.

18. **High Phosphate Detergent**: Detergent which contains at least 5% tri-sodium phosphate (TSP).

19. **Lead-Based Paint**: Surface coatings containing greater than the Consumer Product Safety Commission maximum concentration of 5,000 ppm (0.5% by weight).

20. **Lead-Containing Paint**: Surface coatings containing detectable

levels of lead as regulated under the Cal/OSHA Lead in Construction Standard, 8 CCR 1532.1.

21. **Lead Permissible Exposure Limit (PEL)**: The employer shall ensure that no employee is exposed to an airborne concentration of lead in excess of 10 micrograms per cubic meter ($10ug/m^3$) of air as an eight (8) hour time weighted average (TWA) as covered by OSHA regulations 29 CFR 1926.62 and Cal-OSHA Title 8, Section 1532.1.

22. **Negative Pressure:** Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

23. **Negative Pressure Respirator**: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere. Negative pressure respirators include all powered-air purifying respirators (PAPRs)

24. **Negative Pressure Ventilation System**: A local exhaust system utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.

25. **District:** Las Positas College.

26. **Personal Monitoring**: Sampling of lead concentrations within the breathing zone of an employee.

27. **Replacement**: Means removing components that have lead-painted surfaces, or are considered lead-contaminated and installing new components free of lead-containing paint.

28. **Respirator**: A device designed to protect the wearer from the inhalation of harmful atmospheres.

28. **RCRA**: Resource Conservation and Recovery Act of 1976. RCRA is an amendment to the Solid Waste Disposal Act of 1965. RCRA was amended in 1980 and most recently on November 8, 1984 by Hazardous and Solid Waste Amendments.

30. **Testing Laboratories**: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

31. **Time Weighted Average (TWA)**: The average concentration of a contaminant in air during a specific time period.

32. **Visible Emissions**: Any emissions containing particulate lead material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

33. **Wet Cleaning**: The process of eliminating lead contamination from building surfaces and objects by using cloth, mops, or other cleaning utensils which have been dampened with high phosphate detergent and afterwards thoroughly decontaminated or disposed of as lead contaminated waste.

34. **Work Area**: The area where lead related work or removal operations are performed which is defined and/or isolated to prevent the spread of lead dust, or debris, and entry by unauthorized personnel.

1.06 SUBMITTALS AND NOTICES

A. Training: Submit three (3) days prior to commencing work two (2) copies of the training documentation for each supervisor and worker who will be on-site for this project. This training shall be in accordance with 8 CCR 1532.1 (CAL/OSHA Lead in Construction Standard).

B. Medical Monitoring: Submit Five (5) days prior to commencing work two (2) copies of the medical documentation for each supervisor and worker who will be on-site for this project. Contractor shall submit documentation that all employees engaged in removal activities have had the appropriate medical examinations within the prescribed time periods immediately preceding project start-up. Documentation shall include, but is not limited to, baseline blood lead levels performed in accordance with 8 CCR 1532.1 (CAL/OSHA Lead in Construction Standard).

C. Respiratory Protection: Submit three (3) days before starting work copy of Respiratory Protection Program which is in compliance with ANSI Z88.2-1980, OSHA 29 CFR 1910 and 1926, Cal/OSHA Title 8 Section 1532.1. Contractor shall submit statement from examining physician that each employee is fit to wear a respirator in accordance with 8 CCR 5144 within the last twelve months. Contractor shall also provide documentation showing that all employees have passed respiratory fit tests within the past twelve months. Contractor shall use only workers medically qualified and trained for lead work and respirator usage.

D. OSHA Lead Compliance Plan: Submit a detailed plan of the procedures proposed in order to comply with the requirements of 29 CFR 1926.62 and

Cal/OSHA Title 8 Section 1532.1. Include in the plan all components required under the standard.

E. OSHA Lead-Work Pre-Job Notification: The contractor shall provide written notification to the nearest Cal/OSHA Division District Office one day before the start of the project. Provide a copy of this notification to the Environmental Consultant.

F. Hazard Communication Program: Submit three (3) days before starting work a copy of the Hazard Communication Program which is in compliance with 29 CFR 1910.1200.

G. Hazardous Waste Management Plan: Submit three (3) days before starting work copy of Hazardous Waste Management plan which is in compliance with federal, state, and local hazardous waste regulations and addresses:

1. Identification of hazardous wastes associated with the work.

2. Estimated quantities of wastes to be generated and disposed of.

3. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two (2) copies of EPA, state, and local permit applications, permits, and EPA Identification numbers.

4. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.

5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.

6. Spill prevention, containment, and cleanup contingency measures to be implemented.

7. The Contractor shall submit name, address, and telephone number of landfill or landfills and transporter to the District for approval, prior to disposal. This includes those landfills used for waste categories determined to be non-hazardous.

I. Waste Recycling Records:

1. A written record of receipts with certified weight for recycling of the solid lead items shall be furnished to the District within forty-eight (48) hours after recycling has taken place.

2. Provide a schedule showing date, amount, type of material and location recycled within five (5) working days of recycling.

J. Waste Disposal Records:

1. A written record of receipts with certified weight for disposal of materials containing lead and lead based paint contaminated items shall be furnished to the District within forty-eight (48) hours after disposal has taken place.

2. Provide a schedule showing date, amount, type of material and location disposed of within five (5) working days of disposal.

1.07 ENVIRONMENTAL CONSULTANT

A. The District has authorized Skyline Engineering (Skyline) to be the Environmental Consultant for the project. Skyline will advise the District on all matters relating to the work performed involving the lead removal in accordance with these specifications. Skyline will provide the following inspections, testing, and monitoring services including, but not limited to:

1. Visual inspections to verify Contractor's compliance with the specifications, as well as applicable regulations, regarding hazard control measures, and related decontamination procedures. The Environmental Consultant will have complete access to all lead work areas during the project in order to perform these inspections.

2. Interpretation of technical sections of the contract documents, and coordination with the District and Contractor for enforcement of regulatory and contractual conformance, including stop work issues.

3. Stop work orders will be made jointly by the Environmental Consultant and the District under the following instances including but not limited to:

a. Nonconformance with these specifications.
b. A health hazard or safety risk exists to the workers, District's employees, Environmental Consultant, or the public.

B. The cost of the Environmental Consultant will generally be the responsibility of the District except under special circumstances. The Contractor shall be responsible for the cost of the Environmental Consultant for services performed when: a) The Contractor's Work Area fails final clearance inspection; or b) additional workdays or workday hours (overtime) are

required by the Contractor; or c) The Contractor exceeds the allowable time frame for completion; or d) additional services associated with response to an uncontrolled, unauthorized release to the environment as a result of the Contractor's performance of the work.

1.08 CONTRACTOR QUALIFICATIONS

A. General Superintendent: Provide a General Superintendent whenever Contractor's personnel are on site who is experienced in administration and supervision of lead removal projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor's representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to lead-containing materials.

Experience and Training: The General Superintendent and all workers must have completed lead training in accordance with 8 CCR 1532.1 and have had on-the-job training in lead removal procedures. Submit documentation for each worker per section 1.06.

B. Contractor shall use only workers medically qualified and trained for lead work and respirator usage.

1. The minimum acceptable training course duration is basic lead awareness training in accordance with 8 CCR 1532.1. Should the initial exposure assessment determine lead exposures exceeding the Action Level limit of 2µg/m^3, the lead training must consist of eight (8) hours for each worker. Should the initial exposure assessment determine lead exposures exceeding the permissible exposure limit of 10µg/m^3, the lead training must consist of thirty-two (32) hours for each worker, as specified by the California Department of Public Health (CDPH). All training shall comply with 8 CCR 1532.1 (Cal/OSHA Lead in Construction Standard).

2. Contractor shall submit documentation that all employees engaged in removal activities have had the appropriate medical examinations within the prescribed time periods immediately preceding project start-up. Documentation shall include, but is not limited to, baseline blood lead levels performed in accordance with 8 CCR 1532.1 (Cal/OSHA Lead in Construction Standard).

3. Contractor shall submit statement from examining physician that each employee is fit to wear a respirator in accordance with 8 CCR 5144 within the last twelve months.

4. Documentation that all employees have passed respiratory fit tests within the past twelve months.

5. The Contractor will provide a copy of their lead compliance program specific for this project, as specified in 8 CCR 1532.1 and indicated in Section 1.05 -- Submittals, above.

PART 2 - PRODUCTS

2.01 PROTECTIVE COVERING

A. Polyethylene sheets, of 6-mil thickness, in dimensions of adequate width to minimize frequency of joints. Polyethylene sheeting shall be flame retardant.

2.02 TAPE

A. Duct tape, two inches or wider, capable of sealing joints of adjacent sheets of plastic sheeting or for attachment of plastic sheeting to finished or unfinished surfaces.

2.03 DISPOSAL CONTAINERS

A. Provide non-opaque 6-mil thick polyethylene sheeting, non-opaque 6 mil leak-tight polyethylene bags and other impervious containers as required by applicable regulations. All waste shall be labeled as potentially hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis.

B. All hazardous waste shipping containers shall meet applicable DOT requirements.

C. Spray adhesive used to seal the polyethylene bags shall not contain methylene chloride compounds.

2.04 WARNING SIGNS AND LABELS

A. Caution signs, in accordance with 8 CCR 1532.2, are to be a minimum of 14 x 20 inches and include phrase "CAUTION - LEAD HAZARD - KEEP OUT UNLESS AUTHORIZED" in lettering at least 2" in height. These signs shall be posted at each approach to the work area.

B. Cal/OSHA Lead Warning Posters: "WARNING -- LEAD WORK AREA-- NO SMOKING OR EATING" shall be posted at the entrance to each work area.

D. Hazardous waste labels in accordance with federal, state and local regulations, including, but not limited to the California Code of Regulations, Title 22 Chapter 30 and the U.S. Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.05 PERSONAL PROTECTIVE EQUIPMENT

A. Workers shall wear full body disposable suits with hoods and separate booties, tape around ankles, wrists, under arms and neck. Suits will be worn inside the work area after the area passes pre-removal inspection and shall remain in use until the area passes final clearance inspection.

B. Goggles with side shields will be worn when working with a material that may splash or fragment, or if protective eye wear is specified on the Safety Data Sheets (SDS) for that product.

C. Additional respiratory protection by supplemental filters, such as organic vapor cartridges, may be needed when handling some coating products. Consult the SDS and obtain the proper filters as necessary. The following guideline indicates types of respirators appropriate for adequate protection against varying lead exposures:

RESPIRATORY PROTECTION FACTORS
ASSOCIATED WITH LEAD EXPOSURE OPERATIONS

Respirator Type	**Protection Factor**	**Airborne Concentration of Lead**
Air purifying, negative pressure respirator, half-face, HEPA filter	10	Not in excess of 100 ug/m^3
Air purifying, negative Pressure respirator, full-face, HEPA filter	50	Not in excess of 500 ug/m^3
Powered-air purifying Positive pressure respirator full or half-face, HEPA	1,000	Not in excess of 10,000 ug/m^3
Type C supplied air Positive pressure respirator Continuous flow mode half-face	50	Not in excess of 500 ug/m^3
Type C supplied air Positive pressure respirator Pressure demand mode full facepiece	1,000	Not in excess of 10,000 ug/m^3

D. In addition, all Cal-OSHA requirements, such as hard hats, hearing protection, etc. are required.

2.06 TOOLS AND EQUIPMENT

A. Provide suitable tools for the decontamination and removal of lead containing paint and flashing, including required HEPA vacuums and exhaust units, airless sprayers, ground fault interrupters, hand tools, wipes, ladders, and scaffolds. Mechanical abrasion tools shall be equipped with local HEPA exhaust and subject to approval by the Environmental Consultant. All tools and equipment brought on site shall be clean and free of contamination from lead and other hazardous materials. HEPA filtered equipment shall be labeled with a warning label and dedicated to lead-based paintwork to prevent combining hazardous wastes of differing characteristics.

B. Provide adequate support equipment, including, but not limited to lumber, hardware, hand washing facilities, sprayers, hoses, miscellaneous collection devices, and secured holding facilities.

PART 3 - EXECUTION

3.01 GENERAL

A. The purpose of the Lead in Construction Standard is to provide a level of protection to workers exposed to lead in construction equivalent to that afforded other lead workers under OSHA's general industry standard 29 CFR 1910.1025. The interim final lead standard for the construction industry applies to all occupational exposure to lead in all construction work in which lead, in any amount, is present in an occupationally related context. All of the components subject to replacement have been determined to contain lead. As a result, all component replacement will be performed in accordance with the following work practices.

3.02 WORKER SAFETY/DECONTAMINATION PROCEDURES

A. The contractor shall employ only workers medically qualified and trained for lead work and respirator usage.

1. Medically qualified shall mean that the worker has had an occupational medical exam for lead exposure and respirator use within the last 12 months, in accordance with 29 CFR 1926.62, and

shall have had a blood lead test within the last 6 months.

2. Each lead worker shall have completed documented training in lead hazards and lead removal, in accordance with 1532.1.

3. The Contractor shall assure that no worker is permitted to perform lead removal work until the Environmental Consultant has received and approved all of that worker's medical, training, and respirator fit test certifications.

B. The Contractor shall perform an initial exposure assessment in accordance with 8 CCR 1532.1. This includes, but is not limited to, collecting personal air samples to determine the employee's actual exposure to lead dust during construction activities. The contractor pursuant to OSHA regulations will collect personal samples. Each task performed will be monitored at a flow rate of 1-4 liters per minute on MCE 37mm 0.8 µm pore size cassettes. A minimum of one lab blank will be submitted with each set of samples.

C. Each worker, upon entering the job location, shall proceed to the designated clean room/area and don, at a minimum, a half-mask, negative pressure respirator equipped with HEPA filters, and disposable, full-body, tyvek suit, before entering the Work Area. The above PPE must be worn during all phases of the component removal process. **Personal protective equipment (PPE) must be worn for the duration of this project, or until the initial exposure assessment indicates that exposure to lead dust during these activities will not exceed the action level (2µg/m^3).**

D. Prior to component removal, Contractor shall post lead warning signs at all entrances to the work area. These lead warning signs will be in compliance with the Cal/OSHA Lead in Construction Standard (8 CCR 1532.1).

E. All disposable clothing worn in each work shift shall be removed prior to exiting the Work Area and shall be properly segregated and placed in containers for non-hazardous disposal.

F. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the Work Area.

G. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site.

H. Each worker shall have a final medical blood lead laboratory test within one week of job completion and before engaging in other lead related work.

3.03 GENERAL REMOVAL PROCEDURES

A. Removal of lead flashing: This procedure describes the removal of identified lead flashing located at 3033 Collier Canyon Road. Refer to the contract specifications and drawings for which roofing details fall under this removal category. Various roofing details are assumed solid lead. The removal procedure for accomplishing this is outlined below:

1. Post warning signs as stated in Section 3.02. In addition, cordon off Work Area a minimum of 20 feet from the area of removal.
2. Ventilation, heating or air conditioning air intake sources must be disabled prior to material disruption.
3. The wrapping and bagging of the hazardous material must be done at roof level. The secured material must then be lowered by hand down to ground level – not dropped or thrown.
4. Do not use power saws or other high-speed power tools to cut or remove the lead details.
5. Don appropriate PPE as stated in Section 3.02.
6. Remove lead flashing by carefully cutting around material on the roof field with manual tools.
7. If necessary, if dust or paint chips may be generated by the lead flashing removal, constantly mist the material with amended water so as to minimize the dust levels. Have a HEPA vacuum readily accessible to clean up loose debris.
8. Carefully wrap removed lead flashing in poly sheeting and seal with tape. Any loose debris from the removal of lead flashing should be placed inside 6-mil waste bags. Store this material in a secure area until waste characterization is performed.
9. If paint chips/dust, etc. have been created, clean area using HEPA vacuum and place poly sheeting in 6-mil waste bags for waste characterization.

3.04 WASTE STORAGE AND CHARACTERIZATION

A. The Contractor shall provide for secure on-site storage of LBP related waste. Waste storage location, equipment, containers and methods shall be in compliance with the requirements of 40 CFR 262 and 265 and California Code of Regulations Title 22, and are subject to prior approval by

the District and/or the Environmental Consultant.

B. Construction materials removed from each Work Area must be evaluated to determine waste characteristics prior to disposal.

C. Removed intact lead coated components shall be properly segregated, wrapped in 6-mil polyethylene sheeting, labeled and securely sealed with duct tape.

D. Each lead containing paint-related waste (chips, dust, etc.) produced shall be placed in properly segregated, labeled and sealed containers.

E. All waste containers and packaged waste shall be stored in a designated, secure waste storage area and labeled "PENDING ANALYSIS" with the following information:

1. Waste Category (Chip/Dust and Removed Components)
2. Date Accumulated
3. Name and Address of associated Building
4. Origin of Waste

F. All waste shall be considered hazardous until waste characterization has been performed under the California Code of Regulations, Title 22, including using one or more of the following testing procedures:

1. Total Threshold Limit Concentration (TTLC)
2. Waste Extraction Test (WET)
3. Toxicity Characteristic Leaching Procedure (TCLP)

G. All waste shall remain stored in secured waste storage areas until results of waste characterization are available. Due to analytical methods of these tests, this may require storage for up to seven working days. Based on the testing protocols, any waste containing greater than or equal to 5ppm lead using WET of TCLP tests or any waste containing greater than or equal to 1000ppm using the TTLC test shall be considered a hazardous waste.

H. A minimum of four (4) representative samples will be collected from each category of waste generated.

I. The Contractor is responsible for conducting and all costs associated with waste characterization testing.

3.05 WASTE DISPOSAL

A. The Contractor is responsible for all costs associated with transportation and disposal of all waste, hazardous and non-hazardous. Contractor will submit a base bid which will include disposal of all waste as non-hazardous and an alternate bid for the disposal of any waste determined to be hazardous.

B. The Contractor shall submit name, address, and telephone number of landfill or landfills and transporter to the District for approval prior to disposal. This includes those landfills used for waste categories determined to be non-hazardous.

C. The Contractor shall arrange for all hazardous waste to be transported from the site in accordance with the requirements of 40 CFR 263 and 264, and disposed of properly in accordance with 40 CFR 268, 49 CFR Parts 172, 173, 178, and 179 and California Code of Regulations Title 22.

D. The Contractor shall prepare hazardous waste shipping manifests for review by the District. The manifests shall be signed by the District and copies retained by the District.

E. Copies of the landfill weight tickets shall be provided to the District immediately upon receipt in order to verify the amount of waste disposed of at the site.

3.06 LEAD RECYCLING

A. The Contractor is responsible for all costs associated with transportation and disposal of the solid lead roof details. Contractor will submit a base bid which will include the recycling of all solid lead roof details.

B. The Contractor shall submit name, address, and telephone number of landfill or landfills and transporter to District for approval prior to disposal.

C. The Contractor shall arrange for all hazardous waste to be transported from the site in accordance with the requirements of 40 CFR 263 and 264, and disposed of properly in accordance with 40 CFR 268, 49 CFR Parts 172, 173, 178, and 179 and California Code of Regulations Title 22.

D. The Contractor shall prepare hazardous waste shipping manifests for review by the District. The manifests shall be signed by the District and copies retained by the District.

E. Copies of the landfill weight tickets shall be provided to the District immediately upon receipt in order to verify the amount of waste disposed of at the site.

3.07 STOP WORK ORDERS

A. The District and/or the Environmental Consultant has the authority to stop work if it is determined that conditions or procedures are not in compliance with the Specification and/or applicable regulations; the Contractor is deficient in providing required submittals; the waste is not securely stored; or a potential release of lead dust to outside the Work Area is imminent based on the District's and/or the Environmental Consultant’s judgment.

B. The work stoppage shall remain in effect until conditions have been corrected and corrective measures have been taken to the satisfaction of the District's and/or the Environmental Consultant.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 – GENERAL

1.01 SCOPE OF WORK:

A. Supply and install all lumber as specified herein and as required by the roof system manufacturer to qualify for the specified warranty. Work under this section shall be bid as a unit cost as described below.

B. Work includes:

1. Wood deck repair ($/square foot)
2. Wood deck replacement. ($/plywood sheet 4x8)
3. Wood curb construction for under HVAC equipment.
4. Wood nailer installation. Costs for wood nailers shall be included in the base bid for this project.
   a. Install on all parapet walls and perimeter edges. Refer to detail drawings.
   b. Install wherever required by the roof system manufacturer including at projections and curbs.
   c. If nailers are present, contractor may re-use if approved by the District, Engineer, and roof system manufacturer. However, for purposes of bidding, include replacement/installation of nailers as described above.

1.02 DELIVERY AND STORAGE:

Deliver and store materials in dry, protected areas as directed by owner. Keep free of stain or other damage. Replace any damaged material at no cost to owner. When ready to install, plywood shall be placed on the roof in small stacks over column locations until applied.

1.03 TECHNICAL SUBMITTALS

A. Submittal requirements: Contractor shall highlight anything in the submittal package that conflicts with or changes specifications or drawings. Include a reason for the change. Any submittals that alter existing specifications or drawings shall be approved by the engineer and owner prior to implementation.

B. The following submittals are to be made in conjunction with any other submittal requirements set forth in the bid documents.

C. The contractor shall submit the following upon request of the owner or engineer:

1. Manufacturer specification data sheets. Submit for the following products:
   a. Lumber.
   b. Fasteners.
   c. Hangers and brackets.
   d. Any other product used under this section.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store materials in dry, protected areas as directed by owner. Keep free of stain or other damage. Replace any damaged material at no cost to owner.

B. Store flat and keep dry and covered prior to installation.

C. Installing wet or saturated material may result in shrinkage at butt joints.

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

1.05 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer’s absolute limits.

1.08 WARRANTY

A. Workmanship Warranty: Contractor shall provide to Owner a warranty covering defective workmanship for a period of five (5) years. This warranty shall be written on the contractor’s letterhead or format and shall be independent of required bonds for this project.

PART 2 - MATERIALS

2.01 LUMBER:

A. Lumber shall be dry and well seasoned. The moisture content shall not exceed 19% in boards 8" or less in depth, 15% in lumber more than 8" in depth and plywood.

B. Lumber herein referred to shall be graded and grade marked and shall conform to the following specifications, as applicable. All material shall be new.

1. Douglas Fir Select Structural I. Per standard grading and dressing rules #16 of the West Coast Lumber Inspection Bureau (WCLIB).
2. Plywood: Replacement sheathing, Structural I, CD (exterior glue) shall conform to the requirements designed in American Plywood Association, US Production Standard for soft plywood. Each Standard PS 1-74 size panel shall be stamped with appropriate grade marking, visibly shown.
3. Wood Nailers and curbs under HVAC units: Pressure treated Douglas Fir.

2.02 FASTENERS AND CONNECTORS

A. Metal connectors (Joist hangers) for joist fastenings to supports shall be by Simpson Company of San Leandro, California or approved equal. Where Simpson hangers or brackets are used, contractor shall use corresponding Simpson nails or screws.

B. All nails for fastening plywood to roof supports shall be common nails: flat head, diamond point, hot-dipped galvanized. All nails shall be hot-dip galvanized.

C. Wood Nailers: Screws shall be coated #12. Length sufficient to penetrate steel or wood decking.

PART 3 - EXECUTION

3.01 WOOD MATERIALS:

All materials shall be new when incorporated into the Work.

3.02 WORKMANSHIP:

A. The entire work of this division shall be performed in accordance with the best standards of practice relating to the trade and under the constant supervision of a competent foreman who shall carefully plan and lay out the work as required to carry out the intent of the drawings and to properly accommodate the work of other trades.

B. All lumber framing shall be accurately cut and fitted into the respective location, true to lines, grades and level as indicated or required and permanently secured in proper position with spikes, or other fastenings or fittings as detailed to render the work substantial and rigid in all parts and connections.

C. All framing shall comply with the requirements of the local building codes.

3.03 INSTALLATION OF WOOD NAILERS:

A. Install nailers to meet manufacturers wind uplift requirements per linear foot in any direction.

B. If required by the manufacturer, install nailers at the perimeter, walls, and around curbs to furnish at the same height as the insulation.

3.04 PLYWOOD DECK REPAIR:

Where nails are missing or loose or backed out, replace in like number with 8d nails or #12 screws.

3.05 PLYWOOD DECK REPLACEMENT:

A. Carefully remove damaged existing sheet(s).

B. Cut or trim new sheets in order to fit. Match existing plywood thickness.

C. Nail perimeter to substrate 5” O.C. using 8d nails.

D. Interior nailing shall be 8” O.C. using 8d nails.

3.06 INSTALLATION OF WOOD CURBING UNDER HVAC UNITS:

A. Refer to the detail drawings for exact configuration of curbing.

B. Carefully raise equipment in order to slip the plywood, membrane and metal pan underneath.

C. Re-attach equipment to the curb. Use sealant to seal penetration holes.

END OF SECTION

SECTION 07 15 00
SHEET METAL WATERPROOFING

PART 1 – GENERAL

1.01 SCOPE OF WORK:

A. The Work required under this section consists of all shop and field fabricated sheet metal flashing and trim and related items necessary and required to complete the Work as indicated in this specification

B. Contractor shall provide all items, articles, materials, operations or methods specified herein, including all labor, materials, equipment, and incidentals necessary and required for completion of the work.

C. Protect dissimilar metals by installing barrier sheets between them. Install barriers between metals where there is more than 0.15 V difference in the Anodic Index.

D. Sheet metal work shall include the following:

1. Coated metal edges at perimeter parapet walls.
2. Skirt counter-flashings to be installed at equipment curbs and any location requiring an extension of the existing counter-flashing.
3. Coated metal flashings installed where membrane and metal come into contact.
4. Sheet metal pans installed over new support curbs under HVAC units.

1.02 REFERENCES:

A. American Society for Testing and Materials (ASTM) Standards.

B. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual.

C. Architectural Sheet Metal quality Assurance Guide (latest version).

1.03 QUALITY ASSURANCE:

A. Installer: All work of this Section must be performed by a licensed sheet metal contractor with five years of successful experience with installation of sheet metal flashing and trim similar in type and scope to project requirements.

B. Quality Standard: Fabricate and install sheet metal work in accordance with Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA) "Architectural Sheet Metal Manual", unless specifically indicated

otherwise.

1.04 TECHNICAL SUBMITTALS

A. Submittal requirements: Contractor shall highlight anything in the submittal package that conflicts with or changes specifications or drawings. Include a reason for the change. Any submittals that alter existing specifications or drawings shall be approved by the engineer and District prior to implementation.

B. The following submittals are to be made in conjunction with any other submittal requirements set forth in the bid documents.

C. The contractor shall submit the following upon request of the District or engineer:

1. Manufacturer specification data sheets. Submit for the following products:

   a. Specified sheet metal.

2. Shop drawings of any details that may be different than the NRCA or SMACNA standard details included in these specifications. This includes manufacturer detail drawings that may be different than NRCA or SMACNA drawings. All flashing detail designs shall be approved by the District.

3. Material safety data sheets for all products used under this section.

1.05 WARRANTY & GUARANTEE

A. For all work performed under this section, the Roofing Contractor shall furnish to the District a five (5) year guarantee against labor and/or material leaks AND defects for all labor and materials installed under this contract. This guarantee shall also cover any and all labor and materials necessary to repair or replace any materials that are damaged or deteriorated as a result of material and/or improper or inadequate workmanship.

PART 2 - PRODUCTS

NOTE: GALVANIZED SHEET STEEL IS NOT SPECIFIED FOR THIS PROJECT.

2.01 KYNAR COATED SHEET METAL

A. Kynar coated metal: 70% Kynar Coated Galvalume. Color approved by District. 24 gage (0.0239 inch), unless otherwise shown on the drawings or specified herein.

2.02 STAINLESS STEEL

A. Stainless steel shall be type 304, ASTM A167, fully annealed 0.025” (24 gage) min. Finish shall be 2D mill rolled matte.

B. For areas where stainless steel sheet metal acts as perimeter fascia and is visible from the ground, steel shall be primed and painted in the field. University’s Representative shall approve all colors.

2.03 COATED SHEET METAL

A. Sheet metal that must be tied into single ply systems such as metal edging and drain flanges may be provided by the manufacturer of the single ply system being used.

B. If coated metal is used as a perimeter and is visible from the ground as a fascia, it shall be painted to match the color of the building. Use elastomeric coating systems that are compatible with the thermoplastic membrane coated metal. These coatings can be tinted.

2.04 FASTENERS:

A. Nails: Shall be hot-dipped, galvanized. All nails shall be approved type and selected for their intended use.

B. Screws: Minimum No. 8 size screw with watertight neoprene washers under screw head where exposed shall be used for the fastening of sheet metal into wood nailers. Self-tapping, #3 sheet metal screws of ½" length shall be used for the fastening of sheet metal to sheet metal. All screws shall be of corrosion resistant metal of same material as the material being fastened. All exposed fasteners shall have 5/8" steel/neoprene washers under head.

2.05 ACCESSORY MATERIALS:

A. Sealant: Elastomeric sealant shall be a low modulus, high performance, one part polyurethane type conforming to Federal Specifications No. TT-S-00230C, Type II, Class A, such as Sonolastic NP-1 by Sonneborn Building Products, Sikaflex-15LM or approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Examine substrates and conditions under which products of this section are to be installed and verify that work may properly commence. Do not proceed with the Work until unsatisfactory conditions have been fully resolved.

B. Verify that nailers, blocking, and other attachment provisions for sheet metal work are properly located and securely fastened to resist effects of wind and thermal stresses.

3.02 PREPARATION:

A. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

B. Verify that surfaces to receive sheet metal are smooth, clean of all foreign matter, and have no water present in any form.

3.03 SHEET METAL INSTALLATION:

A. Sheet metal work shall be executed in a first-class, workmanlike manner in accordance with standard shop practices. Comply with sheet metal manufacturer's installation methods and recommendations in the SMACNA "Architectural Sheet Metal Manual".

B. The sheet metal work shall be accurately formed to dimensions and shapes detailed or required. Broken shapes shall finish with true, straight, sharp lines, and angles; and where intersecting, shall be coped to a precise fit and be securely soldered and scraped smooth. Lock seam work shall be made flat and true to line, sweated full of solder.

C. All sheet work shall be so formed and installed as to provide suitable allowance for expansion and contraction without causing undue stresses in any part of the completed work and shall finish water and weather tight throughout. Provide movement joints at maximum spacing of ten feet. No joints within 2 feet of corner or intersection.

D. Mechanically fasten and solder all joints, splices and transitions that are not designed for expansion. Fasten metal by solid riveting or forming double lock seams. Seal by continuous soldering.

E. Galvanic Action Protection: Isolate different metal types from each other to prevent galvanic action.

F. Use elastomeric sealant where necessary to make a watertight installation.

G. Form a ½ - inch hem on the underside of all exposed edges.

H. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer. The gage thickness shall be as recommended by SMACNA for application but in no case less than gage of metal being secured.

I. Heat weldable coated metal flashings provided by single ply manufacturer such as edges and flanges shall be installed in accordance with manufacturer guidelines. Coated metal shall be used for all metal that needs to be sealed into the single ply membrane including but not limited to metal edges and scuppers.

3.04 PAINTING:

Coated sheet metal that is exposed as fascia shall be painted to match the building. If Kynar coated is used, color shall be approved by the College.

3.05 INSPECTION:

Before completing the work, District shall carefully examine, and if necessary, test all sheet metal work and equipment specified herein, and Contractor shall make all repairs to the work if damaged, leaving it in a condition satisfactory of the District.

3.06 CLEAN UP:

All debris and/or rubbish resulting from the operations of this Work shall be cleaned up and removed from the work site as the work progresses. Contractor shall be responsible for removal of refuse by all subcontractors working under its direction.

END OF SECTION

SECTION 07 54 00
THERMOPLASTIC MEMBRANE ROOFING

PART 1 – GENERAL

1.01 SCOPE OF WORK UNDER THIS SECTION:

A. Provide odor control measures at all air intakes as specified.

B. Install crickets on the high sides of all curbs and along the drainage edge between primary drains as specified.

C. Mechanically attach specified insulation and adhere ¼ approved coverboard to the deck as specified.

D. Fully adhere specified fleece backed 80 mil thermoplastic membrane as specified.

E. Install walk pads from roof access points to all serviceable equipment as specified or shown on the plan drawings.

F. Any equipment that will not have curb heights of 8” above the final roof surface shall be extended or raised. If the proposed roofing system manufacturer will accept curb heights less than 8”, contractor shall submit request in writing (from manufacturer) to District and engineer to withdraw this requirement. If a particular piece of equipment is impossible or not financially feasible to lift, raise or extend, contractor shall notify the engineer prior to the bid date for direction.

G. Perimeter and projection flashings:

1. Provide all flashing and penetration details in accordance with the detail drawings and manufacturer guidelines as specified in this.
2. Drawings included with these specifications are not meant to accurately depict substrate conditions. They are meant to provide NRCA guidelines for basic flashing installation according to the system specified.
3. If a manufacturer standard and required detail differs from that shown on the project detail drawings included in these specifications, contractor shall submit manufacturer approved drawing to the District and Engineer for approval. If the manufacturer requirements for a flashing detail is less stringent than those shown in the project drawings, the more stringent flashing detail shall govern with the approval of the manufacturer providing the warranty for this project.

H. Provide District with a five (5) year contractor guarantee as specified.

I. Provide District with a thirty (30) year no-dollar-limit manufacturer warranty covering labor, materials, and metal flashings as specified.

1.02 QUALITY ASSURANCE

A. Contractor shall:

1. Be experienced in single ply roofing.
2. Be certified or approved for the installation of proposed manufacturer's warranted roofing systems.

1.03 SYSTEM REQUIREMENTS

A. Roofing system shall comply with the California Building Code.

B. All materials shall comply with section 5.504 of the 2019 California Green Building Standards Code. This requirement shall apply regardless of the products listed in these specifications. It is the responsibility of the contractor and manufacturer to comply with this requirement.

C. FIRE RATING - UL Class A: Proposed roofing system must have approvals from Underwriters Laboratories that indicate that the existing fire ratings attain a UL Class A assembly.

D. WIND UPLIFT: Any of the following.

1. Factory Mutual: FM 4450, FM 4470 design standard for wind uplift is acceptable for this project.
2. Underwriter's Laboratory: UL 580 or UL 1897.
3. ASCE 7-16 Wind Design loads.

E. Perimeter flashings shall meet ANSI/SPRI ES-1 – American National Standard Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.

F. The new roof system shall comply with all mandatory requirements under The California Green Building Standards as listed under Title 24 Part 11.

1.04 TECHNICAL SUBMITTALS

A. Submittal requirements: Contractor shall highlight anything in the submittal package that conflicts with or changes specifications or drawings. Include a reason for the change. Any submittals that alter existing specifications or drawings shall be approved by the engineer and District prior to implementation.

B. The following submittals are to be made in conjunction with any other submittal requirements set forth in the bid documents.

C. The contractor shall submit the following upon request of the District or engineer:

1. Manufacturer specification data sheets. Submit for the following products:
   a. Roof assembly.
   b. Single ply membrane.

c. Adhesives.

d. Walk pads (must be approved by District).

e. Any other product used on this project.

2. Manufacturer literature describing the installation procedure of the specified system.

3. Letter from manufacturer approving these specifications and drawings. Any changes in plans or specs to meet manufacturer requirements shall be submitted and highlighted. If manufacturer requirements conflict with these specifications or drawings, more stringent requirements will apply.

4. Shop drawings of any details that may be different than the NRCA standard details included in these specifications. This includes manufacturer detail drawings that may be different than NRCA drawings. All flashing detail designs shall be approved by the District.

5. Material safety data sheets.

6. Test reports:

   a. Perimeter flashings shall meet ANSI/SPRI ES-1 – American National Standard Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems. Provide documentation from the manufacturer along with detail drawings for this requirement.

   b. Written verification from roofing material supplier that roofing system meets or exceeds regulatory agency/s requirements. A photocopy of the UL Class "A" listing for the specified system with the proposed manufacturer as listed in the most recent UL Building Materials Directory. The Components of the system listed as UL Class "A" must match the system specified for each respective building.

   c. Perimeter wind uplift: ASCE 7-16 (latest version Wind Design loads as calculated by the manufacturer for this specific project. Submit calculations for wind ratings using ASCE 7 for the specific building AND a letter or documentation from the manufacturer that roof attachment meets or exceeds these requirements.

   d. Wind uplift rating. Submit any of the following:

      - Factory Mutual I-60. FM listing is not required, but an FM design standard for wind uplift is acceptable for this project. Submit calculations for wind ratings for FM 1-60 for the specific building AND a letter or documentation from the manufacturer that roof attachment meets or exceeds these requirements.

      - UL Class 60 wind uplift rating. Submit a letter or documentation from the manufacturer that roof attachment meets or exceeds this requirements.

1.05 SUBMITTALS OF RFI's (Requests for Information)

A. Refer to Section 3.07 of this specification for explanations of the procedures surrounding flashing design changes.

B. RFI's for design clarifications shall be submitted prior to bid opening. If an RFI for the design of a flashing is submitted after the bid opening, contractor may be liable for compensating the District and engineer for time spent responding.

C. RFI's can only be made after the bid opening if as a result of removing the existing roofing/flashing an unforeseen condition arises that affects the flashing design or the manufacturer required design.

D. It is the responsibility of the contractor to carefully review specifications and drawings prior to bidding. If conflicts are found between drawings and specifications (and between manufacturer requirements), submit an RFI prior to bidding. After the bid opening, it will be assumed that the contractor has reviewed the drawings and specifications and has bid the more stringent requirement. At this point, no change orders will be given for such discrepancies.

1.06 WARRANTY

A. Warranty: The Roofing Manufacturer shall provide a full system no dollar limit (NDL) warranty covering the roofing system against labor and/or material deficiencies for a minimum period of thirty (30) years from the date of acceptance by the District. This shall be a continuous warranty without the need for renewing. Manufacturer may require inspections throughout the warranty period, but any costs associated must be included in this initial contract.

B. Contractor Warranty: Upon project completion and District acceptance, effective upon complete payment, Contractor shall issue District a warranty against defective workmanship and materials for a period of five (5) years. This warranty shall cover all aspects of the project as specified. It shall not be limited to leaks, but include any and all defects that may become apparent during the warranty period.

PART 2 – MATERIALS

2.01 GENERAL:

A. All materials used on this project shall be new products.

B. Any materials that are seconds, out of date, or used, shall be removed from the job site.

C. Single ply membrane shall be white with a Cool Roof and Energy Star rating.

D. FIRE RATING: UL Class A: Proposed roofing system must have approvals from Underwriters Laboratories that indicate that the existing fire ratings attain a UL Class A assembly.

E. WIND UPLIFT: The system shall attain a Factory Mutual I-60 or UL Class 60 wind uplift rating. FM listing is not required, but an FM design standard is adequate for this project.

2.02 RELATED MATERIALS:

A. TAPERED INSULATION for cricket enhancement: Isocyanurate as approved by membrane manufacturer.

B. FLAT STOCK INSULATION: Isocyanurate R10 as approved by membrane manufacturer.

C. COVERBOARD:

1. USG Securerock,
2. Densdeck Prime ¼”
3. or approved equal.
4. Note: Wood fiber or perlite coverboard is not acceptable for this project even if it is approved by the manufacturer.

D. COATED METAL FLASHINGS: All coated metal flashing shall be supplied by the manufacturer and covered under the warranty.

E. ADHESIVES: Shall be approved by the membrane manufacturer. Adhesives shall be voc compliant.

F. WALK PADS: Shall be furnished by the membrane manufacturer. Walk treads shall be of the highest quality provided by the manufacturer. Samples of the walk treads shall be provided to the District for approval.

G. FASTENERS AND STRESS PLATES: Shall be a non-corrosive type approved by the membrane manufacturer.

H. CAULK: Shall be a high-grade silicone or urethane as recommended by a membrane manufacturer.

I. POND PATCH: Shall be approved by the manufacturer providing the membrane for this project.

2.03 PRE-APPROVED ROOFING SYSTEMS/MANUFACTURERS:

Note: When systems are fully adhered, use fleece backed membrane only. Check with manufacturer for specification/warranty compliance prior to bidding. Some listed manufacturers may not provide the 30 year warranty as specified.

A. PVC Thermoplastic Membrane 80 mils
   1. Sarnafil
   2. Johns Manville
   3. Durolast
   4. Carlisle SynTec Sure-Flex
   5. GAF EverGuard
   6. Soprema Sentinel
   7. Siplast Parasolo

B. TPO Thermoplastic Membrane 80 mils
   1. Firestone UltraPly
   2. Johns Manville
   3. Carlisle SynTec Sure-Weld
   4. GAF EverGuard

PART 3 – EXECUTION

3.01 GENERAL

A. It is the responsibility of the contractor to ensure that all requirements for the specified 30 year NDL warranty are accomplished and included in the bid for this project. No change orders will be approved for non-specified details, techniques, materials or procedures in order to obtain this warranty. If major problems or challenges are noted with regards to these requirements, the contractor shall notify the District prior to the bid opening.

B. When using adhesives for membrane or flashings, contractor shall follow manufacturer's guidelines for installation during particular weather conditions. High humidity and/or low temperatures can adversely affect adhesives, especially low VOC and water based adhesives. Contractor shall take care on a daily basis to ensure that the use of these adhesives is restricted to weather conditions that are acceptable to the manufacturer.

C. Difficult areas of roofing:

1. It is not the intention of this specification to provide means or methods of roof installation. However, means and methods of roof installation must adhere to industry and manufacturer standards and shall have the approval of the District and engineer.

2. Unusual, unorthodox, or dangerous methods of roof removal or installation shall be reported to and approved by the District prior to execution.

3. If rooftop equipment or any other building component needs to be modified or moved in order to properly install the roofing system, it will be the responsibility of the contractor to perform the work under the base bid for this project without change order request. Contractor shall obtain permission from the District prior to bid opening for any equipment or building component modification. Any damage that is incurred to the equipment or building component as a result of movement or modification shall be repaired or replaced by the contractor at no cost to the District.

D. Perimeter and projection flashings: Please refer to section 3.06 of these specifications for specific instructions regarding flashings.

3.02 SURFACE PREPARATION:

A. Remove designated roof membrane and flashings down to the deck as specified in section 02 41 19.13.

B. Repair or replace damaged wood decking and wood deck components in accordance with section 06 01 00 Rough Carpentry.

C. Ensure that the substrate is dry and free of dirt, debris, and other foreign matter prior to the installation of new materials.

3.03 ODOR CONTROL

A. Contractor shall take the following steps to ensure that odor does not penetrate into work space during installation of roofing system:

1. Provide charcoal filters over air intakes.
2. Provide duct extensions or diverters when working near air intakes. Intake diverters may be flex hosing or plywood structures.
3. Work with the building occupants to coordinate work around air intake units. In some cases it may be possible to re-circulate or shut air intake system down.

B. The contractor is ultimately responsible for odor control as part of the contract. The District and roof consultant shall determine if contractor has provided adequate odor control measures.

3.04 INSTALLATION OF NAILERS:

A. Install nailers as required by the manufacturer in accordance with section 06 10 00 Rough Carpentry.

3.05 INSTALLATION OF CRICKETS, INSULATION AND COVERBOARD:

A. Install drainage crickets at the high side of all curbs.

B. Mechanically attach the specified insulation and adhere the coverboard filling all voids greater than 1/4" and staggering all joints. If using fasteners, fasten only into upper flutes. (For applications on metal decks). Fastener length should not penetrate down below the lower flutes because conduits are mounted on the underside of the deck.

C. Sump the insulation at drains 36 inches square from the edge of the drain to provide a positive slope. Drain sump shall have tapered insulation to provide a uniform slope down to the drain.

D. Stagger all joints between layers.

E. Cut insulation to fit snugly around all penetrations. Fill any voids greater than ¼" with like material.

3.06 INSTALLATION OF MEMBRANE:

A. Install perimeter sheets using approved adhesive in accordance with

manufacturer's requirements.

B. Follow manufacturer recommendations for the installation of perimeter or membrane venting.

C. Inspect the membrane for factory defects or shipping damage. Defective and/or damaged membrane will be rejected. (Note: No more than ten (10) patches per sheet.)

D. Position field sheets so that side laps are single lapped with the slope and in accordance with the manufacturer's recommendation.

E. Fully adhered membrane: Adhere the membrane using approved adhesive in accordance with the manufacturer's requirements to satisfy specified wind uplift requirements.

F. Prevent wrinkling of membrane as much as possible. (If excessive wrinkling occurs, the Consultant may require the contractor to tack-weld the lap seams and then complete the entire weld.)

G. Set the seam welder to the manufacturer's required setting. Make a test run and check the seam for proper welds. (All test runs shall be performed on a daily basis.

H. Probe seams daily and repair loose edges, fish-mouths, and other defects the same day.

I. Ensure that all welding is performed by qualified personnel.

J. The seam welder shall be powered by a dedicated power supply so as to ensure proper, adequate, and uniform voltage for sufficient seaming procedures. Also, the welder shall be equipped with voltage regulator cut-off features such as infrared sensors and other similar devices to insure consistent voltage, thereby reducing the possibility of cold or inadequate welds. The extension cord to welding units from power supply shall not exceed one (1) cord of 100 feet in length.

3.07 FLASHINGS

A. General flashing requirements:

1. Elastomeric Flashing:

a. Adhere elastomeric sheeting completely to flashing surface and roof with Flashing Adhesive. Embed flashing into adhesive immediately.

b. Ensure complete bond and continuity without wrinkles or voids.

c. Any equipment that will not have curb heights of 8” above the final roof surface shall be extended or raised. If the proposed roofing system manufacturer will accept curb heights less than 8”, contractor shall submit

request in writing (from manufacturer) to District and engineer to withdraw this requirement. If a particular piece of equipment is impossible or not financially feasible to lift, raise or extend, contractor shall notify the engineer prior to the bid date for direction.

B. Install flashings in accordance with detail drawings and manufacturer guidelines. Details depicted in the drawings shall also conform with manufacturer guidelines. Where conflict exists, the more stringent detail shall govern. If conflict exists between depicted drawings and manufacturer guidelines, the following process shall apply:

1. Manufacturer shall inspect the detail and provide a recommended flashing design to the contractor and engineer.
2. Contractor shall install the flashing only after it has been approved by the engineer and District.
3. There shall be no additional charges for this proposed detail. It is the responsibility of the contractor to ensure that all manufacturer guidelines are accounted for in the base bid for this project.

C. ANY DETAIL NOT COVERED IN THESE SPECIFICATIONS SHALL BE INSTALLED IN ACCORDANCE WITH GOOD ROOFING PRACTICE, N.R.C.A. RECOMMENDATIONS AND HAVE THE APPROVAL OF THE MANUFACTURER PROVIDING THE WARRANTY FOR THE ROOFING SYSTEM. If a detail is not covered in these specifications the following process will take place prior to bid opening:

1. Contact manufacturer responsible for flashing guarantee. Manufacturer shall inspect the detail and provide a recommended flashing design to the contractor. OR contractor may bid using the approved manufacturer detail.
2. Contractor shall bid using the manufacturer-approved detail.
3. Contractor shall submit detail drawing to District as part of the submittals.
4. No change order will be given to the contractor for flashing details that were visible prior to construction. It is the responsibility of the contractor to cover in his bid all approved and specified details.

D. Hidden Conditions warranting a change in scope of work or change order:

1. A hidden condition is defined as a condition that is revealed when the existing roof or flashing is removed AND that condition requires additional work above and beyond the work specified. For example, damaged substrate that must be replaced.
2. If after removal of the roof or flashing, the substrate differs from that shown on the drawings, it shall not be considered a hidden condition unless it requires a change in scope of work.

3. If nailers are required by the manufacturer, contractor shall install nailers if not present. If nailers are present, contractor may re-use if nailers are approved by the manufacturer.

3.08 SPECIAL INSTRUCTIONS:

A. Obsolete Penetrations - Verify with District all obsolete penetrations and remove from the roof.

B. Delicate mechanical equipment – All mechanical equipment that is damaged or too delicate to move shall be identified at the pre-bid meeting or prior to bid.

C. Sleepers - All sleepers should run perpendicular with the flow of water. If this is not possible, the sleepers should be boxed in and a diverter placed on the upside to prevent water from ponding. For extremely large sleepers that cannot be boxed in, contractor shall install tapered insulation between the sleepers in order to evacuate water from underneath the unit.

D. Existing Horizontal Conduits that do not need to be mechanically attached to the roof surface and are less than 1.5” diameter – Install Copper B Line supports or approved equal. Adhere supports to the roof surface using approved sealant or adhesive in order to prevent movement of the lines. Refer to drawing entitled “Copper B Line Support.”

E. Existing Horizontal Pipes that do not need to be mechanically attached to the roof surface for seismic support – Install pipe hanger system in accordance with manufacturer requirements. Carefully support existing lines in order to prevent breakage during installation.

F. Condensate lines – Install Copper B Line supports or approved equal. Adhere supports to the roof surface using approved sealant or adhesive in order to prevent movement of the lines. All condensate lines shall be set in a manner to facilitate drainage. Contractor shall replace or repair damaged or missing condensate lines or lines damaged during roof installation. Contractor shall run condensate lines to nearest drain outlets. Refer to drawing entitled “Copper B Line Support.”

G. Gas lines and electrical lines that need to be attached to the roof surface: see detail drawing.

H. Equipment Legs and Supports - All supports for equipment and like items shall be set on wood blocks with membrane protection pads underneath or rubber pads.

I. Remove Josam type drains and install manufacturer approved drain inserts.

J. MECHANICAL EQUIPMENT NOT MEETING 8” HEIGHT REQUIREMENT FOR BASE FLASHING: It is not the intention of this contract to perform major mechanical alteration in order to provide 8” heights on flashings. If a mechanical

unit exists that does not meet a flashing height requirement, the contractor may install flashings in a manner that does not require major alteration. It is still the responsibility of the contractor to perform the flashing in a watertight manner, and the flashing will be included in the contractor guarantee. If the manufacturer requires a particular flashing height, it is acceptable for the manufacturer to exempt the mechanical unit from the warranty with approval of the District and engineer. If a manufacturer is not willing to exempt a specific flashing, then it is the responsibility of the contractor to either comply with the manufacturer requirement, or use another manufacturer.

3.09 WALK PADS:

A. Clean roof surface of all dirt and debris where walk pads are to be placed.

B. Install walk pads as approved and warranted by the membrane manufacturer.

C. Walk pads shall be heat-welded to the membrane by a method approved by the manufacturer. If approved, the preferred method of walk pad attachment is by tack-welding corners.

D. Locations of walk pads: Completely around all serviceable equipment. From serviceable equipment to roof access point. If there is no designated roof access point, install walk pads between units only. Also follow designated layouts on roof plan drawings if provided.

E. Cut slots or spaces in walk pads that may impede drainage. Avoid welding walkpads over membrane seams if possible.

F. Contractor shall be responsible to estimate linear footage of required walk pads in accordance with the above specification.

3.10 POWER SOURCE:

A. The Contractor shall be responsible for supplying his own power source.

B. The power shall be of sufficient voltage to insure that welds are made properly.

3.11 AESTHETICS:

A. Contractor shall coordinate aesthetics with District.

B. Contractor shall take precaution against overspray as directed by District.

C. Contractor shall paint areas of asphalt spillage as directed by the District.

D. Paint all sheet metal and lead surfaces in accordance with Section 099113.

E. Any dirt, stains from bitumen materials, or other foreign matter shall be removed

from the newly installed membrane to restore the surface to a clean, spot-free, and as-new condition, using methods as recommended by the manufacturer.

3.12 FINAL TESTING, INSPECTION & PUNCHLIST:

A. Contractor shall notify the District when roof is ready for final inspection.

B. District shall coordinate final inspection and provide contractor with punch list.

C. Contractor shall perform punchlist items within seven (7) working days of having received the final inspection punchlist.

D. District shall coordinate an inspection verifying that all punchlist items have been complete. If punchlist items remain, contractor may be subject to compensating the District for additional final punchlist verification inspections.

END OF SECTION