



**REQUEST FOR PROPOSAL**  
**PROJECTS \$60,000 to \$200,000**

- 1.0 NOTICE TO PROPOSERS
- 2.0 INSTRUCTIONS TO PROPOSERS
- 3.0 PROPOSAL
- 4.0 BID BOND
- 5.0 GENERAL CONDITIONS OF THE AGREEMENT
- 6.0 PROJECT SCOPE
- 7.0 ATTACHMENTS

**PROJECT: West Hills Community College District**

**West Hills College Coalinga**

- **Building E Roof Replacement**
- **300 Cherry Lane**  
**Coalinga, CA 93210**

**1.0 NOTICE TO PROPOSERS**  
**Request for Proposal**

**DATE:** January 28, 2022

**TO:** Qualified Proposers

**FROM:** Shaun Bailey  
West Hills College Coalinga  
300 Cherry Lane.  
Coalinga, CA 93210

**PROJECT: Building E Roof Replacement Project**

West Hills College Coalinga  
West Hills Community College District

**PROJECT DESCRIPTION:** This project will require the removal and replacement of the existing roof at Building E. The Contractor will include all labor, materials, and equipment to complete the work.

**LICENSE REQUIRED:** C-39

**PROPOSAL DATE/TIME:** February 18, 2022 at 2:00pm

**PROPOSAL LOCATION:** West Hills College Coalinga  
300 Cherry Lane  
Coalinga, CA 93210  
Attn: Shaun Bailey, Director, Maintenance/Operations

**BID SECURITY BOND:** Required 10% Bid Bond if proposal is \$15,000 or over.

**PERFORMANCE AND PAYMENT BOND:** Required if proposal is \$25,000 or over.

**PREVAILING WAGE PROJECT:** Yes

**CONTRACT DOCUMENTS AND SPECIFICATIONS  
MAY BE OBTAINED AT ADDRESS BELOW:**

**CONTACT PERSON:** Shaun Bailey  
(559) 934-2254  
E-mail: [shaunbailey@whccd.edu](mailto:shaunbailey@whccd.edu)

**MANDATORY SITE VISIT: February 7, 2022 at 2:00pm. West Hills College Coalinga  
M&O Building**

## **2.0 INSTRUCTIONS TO PROPOSER**

### PART 1 - GENERAL

#### A. SECURING DOCUMENTS:

1. Contractors obtaining these plans and project manual for the purpose of submitting proposals for this work shall notify the District of their intentions, together with mailing address and telephone number, so they may be fully advised of any addenda to the construction documents being figured, or of any corrections, additions or omissions. Failure to so notify the District will make the contractor liable for the inclusion of all information according to the addenda in this contract, whether received or not.
2. Construction documents will not be issued to contractors who are not licensed to do business in the State of California, and the District will not consider or accept any proposal or proposals from such contractors.
3. Proposers shall have a generally recognized record for satisfactory execution of contracts of a similar size and character.

#### B. EXAMINATION OF PROPOSAL DOCUMENTS:

1. Each proposer shall examine the proposal documents carefully prior to date for receipt for proposals, shall make written request for interpretation and/or correction of any ambiguity, inconsistency or error therein which he may discover.  
Any interpretation and/or correction will be issued as an Addendum. Only a written interpretation and/or correction by Addenda shall be binding. No proposer shall rely upon any interpretation and/or correction given by any other method.
2. By submitting a proposal, the proposer implies that he has thoroughly investigated and is satisfied as to the character quality and quantities of work to be performed and materials to be furnished, and as to all the stipulations and requirements of the Contract and construction documents.
3. The Proposer shall diligently investigate existing conditions to ascertain work required and include all necessary cutting and patching and refinishing in his proposal. He shall provide for and exercise every precaution to protect the existing facilities against dust, dirt, water, trash, interruption of personnel activities, etc., due to operations under this Contract.
4. The District will not be responsible for any omissions, errors, etc., which may result from the Contractor's procurement of incomplete documents. It shall be the Contractor's responsibility to review and ascertain all of the required work, materials, etc., to be provided by him in performing all work as required and/or called for by the Contract Documents.

#### C. INTERPRETATION OF DOCUMENTS:

Should a proposer find discrepancies in, and/or omissions from the drawings and specifications, and/or should he be in doubt as to their meaning, he shall at once notify the District and should it be found necessary, a written addendum or clarification will be sent to all Proposers. The District will not be responsible for oral instructions.

1. Questions during proposal period shall be submitted in writing to Shaun Bailey. Email or Fax copies will be accepted.
2. No questions will be answered 48 hours prior to proposal opening.
3. E-mail questions will be accepted within the above time limits. [shaunbailey@whccd.edu](mailto:shaunbailey@whccd.edu)

#### D. PROPOSALS:

Proposals to receive consideration shall be made in accordance with the following instructions:

1. Proposals shall be made upon the proposal forms, properly executed and with all items filled out; numbers shall be stated both in writing and in figures. The complete proposal form shall

- be without alterations to content, form, and scope project; and the signatures of all persons signing shall be in longhand.
2. Alternate proposals will not be considered unless called for. No oral, telegraphic or telephonic proposals or modifications will be considered.
  3. Before submitting proposals for this work, including RFP's, each proposer will be held to have examined the project premises and satisfied himself as to the existing conditions under which he will be obliged to operate, and that no changes will be made subsequently in this connection or in behalf of the Contractor for any error or negligence on his part, and he shall include in the proposal a sum to cover the cost of all items included in the contract and/or subsequent RFP's. No additional cost will be considered for price increases of any materials, labors, methods and/or procedures. The Contractor shall make allowances for any and all price changes occurring during this project from proposal through final completion and project acceptance by District.
  4. Proposals will be delivered to the District at locations and time noted on "Bid Proposal" on or before the day and hour set for the opening of proposals. Proposal forms shall be enclosed in an envelope and bear the title of work and the name of the proposer. It is the sole responsibility of the proposer to see that his proposal is received in proper time and location. Any proposal received after the scheduled closing time for receipt of proposals will be returned to the proposer. Emailed or Faxed Proposals are acceptable as well. Email proposals to [shaunbailey@whccd.edu](mailto:shaunbailey@whccd.edu) or fax to 559-934-2874.
  5. Each proposer shall include with Proposal a Non-Collusion Affidavit, Prevailing Wage Compliance Certificate, required bond documents, and Certification of Workmen's Compensation to be executed by proposer and submitted with proposal. Form is included in "Bid Proposal" section. Form shall be fully executed and included with Proposal.
  6. General Information:
    - a. The District reserves the right to reject any or all proposals and/or waive any irregularities or informalities in any proposals and/or in the proposals process.
    - b. The District has determined the general prevailing rate of per diem wages in the locality in which this work is to be performed for each craft or type of worker needed to execute this Contract. These rates are available on the Internet at the following address: [www.dir.ca.gov/DLSR/statistics\\_research.html](http://www.dir.ca.gov/DLSR/statistics_research.html). Copies may be downloaded by the Contractor.
    - c. The schedule of per diem wages is based upon a working day of eight hours. The rate for holiday and overtime work shall be at least time and one half.
    - d. It shall be mandatory upon the Contractor to whom the Contract is awarded (Contractor), and upon any subcontractor under him, to pay not less than the specified rates to all workers employed by them in the execution of the Contract. It is Contractor's responsibility to determine any rate change which may have or will occur during the intervening period between each issuance of written rates by the Director of Industrial Relations.
    - e. If awarded, proposal will be awarded to the lowest qualified proposal.
- E. **WITHDRAWAL OF PROPOSAL:**  
Proposals may be withdrawn by the Proposer prior to, but not later than, the time fixed for opening of proposals.
- F. **CORPORATION AS PROPOSER:**  
In case a proposal is submitted by a corporation, it shall be signed in the name of such corporation by a duly authorized officer or agent thereof.
- G. **SALES TAXES:**  
Sales taxes and any or all taxes and any other City, County, State, or Federal, except property taxes shall be included in the proposal. All proposals shall include all license fees, permit fees, and other fees to complete this project. See herein for permits, inspections, and assessments required for this project.

H. ADHERENCE:

No proposal will be considered that does not strictly adhere to all requirements of these instructions to Proposers.

I. PROPOSALS TO BE ACCEPTED BY DISTRICT:

The successful contractor shall be determined by the lowest total aggregate proposal of any or all proposals accepted by the District. The District reserves the right to select the proposals and/or aggregate of proposals it deems advantageous to the District.

J. AWARD OR REJECTION OF PROPOSALS:

The contract shall be awarded to the responsible proposer complying with these instructions. The District reserves the right to reject any and all proposals and to waive any informality or irregularity in proposals received. The award, if made, will be made within sixty (60) calendar days after the opening of the proposals.

K. EXAMINATION OF SITE:

The Proposer shall carefully examine the site of the contemplated work prior to submitting a proposal and shall have satisfied himself as to the existing conditions and the conditions under which he will be obligated to operate, and/or that will in any manner affect the work under the contract. No allowance will be made subsequently in this connection for items that could be reasonably be inferred to be required to complete project scope from a careful examination of site of the contemplated work.

L. ADDENDA AND BULLETINS:

Any addenda or bulletin items issued during the time of proposals shall be an integral part of the Contract Documents used by the Proposer for the preparation of his proposal, all items of addenda and/or bulletins shall be included in the Proposal and shall be made part of the Contract. Delivery of any Addenda or Bulletin in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, delivery by mail to the last known business address of the Contractor, or fax transmittal with telephone confirmation of complete receipt and or email will be considered to be proper service of said documents.

M. PERMITS, INSPECTIONS AND ASSESSMENTS, ETC.:

No building permits required for this project.

List of fees/assessments:

1. None.

N. FORMAL PROTEST OF PROPOSAL:

Any proposer submitting a proposal to the District or a third party may file a protest against District awarding contract on this project provided that protestor meet all of the following requirements:

1. Protest shall be submitted in writing and received on or before 72 hours after proposal opening time. Protest received after that shall not be recognized.
2. Protest of any proposals shall be filed and received by the Chief Business Officer, of the District by certified mail or by personal delivery during normal working hours, for administrative appeal.
3. Protest Submittal shall contain the following:
  - a. The written proposal protest sets forth, in detail, all grounds for the proposal protest, including without limitation all facts, supporting documentation, legal authorities and argument in support of the grounds for the proposal protest; any matters not set forth in written proposal protest shall be deemed waived. All factual contentions must be supported by competent, admissible and creditable evidence.
  - b. Name, address, phone number of person(s), company and/or organization that is making protest and name of project protest is for.

4. Any proposal protests not conforming to the foregoing shall be rejected by the Owner as invalid. Provided that a proposal protest is filed in conformity with the foregoing, the Owner's Chief Business Officer or such individual(s) as may be designated by the Chief Business Officer, in his discretion, shall review and evaluate the basis of the proposal protest, and shall provide a written decision to the proposer submitting the proposal protest concurring with or denying the proposal protest. The written decision of the Chief Business Officer shall be considered an administration appeal.
5. The protest decision by the Chief Business Officer may be appealed to the Board of Trustees as a judicial appeal. This request must be filed with the Chief Business Officer within 72 hours of receipt of the written decision of the Chief Business Officer. Said appeal shall be accompanied with reason for appeal. The judicial appeal will be calendared within 31 days or less of receipt. The final decision of the Board of Trustees is not subject to arbitration, mediation or reconsideration/appeal.

O. **STARTING WORK:**

All documents shall be submitted and approved prior to starting work. Failure to provide complete information prior to days indicated shall be considered non-responsive, bid bond will be forfeited, and Contractor shall be declared in default.

- |    |   |   |
|----|---|---|
| 1. | All insurance certificates -                    | 10 days- Following award                            |
| 2. | Proof of Contractor's/Subcontractor's license - | 10 days -Following award                            |
| 3. | Start work                                      | 5 days from notice to proceed and/or purchase order |

**PART 2 - PERFORMANCE OF WORK UNDER CONTRACT**

A. **SUPERVISION:**

The General Contractor and all subcontractors engaged by general contractor will be required to designate one responsible on-site person with authority to receive directions and issue instructions for the orderly prosecution of the work.

B. **BUILDING CODE REQUIREMENTS:**

1. All work performed under this Contract shall conform to the applicable portions and editions of the following current codes:
  - a. California Building Code--CCR, T24 Parts 1-9.
  - b. Public Health Code of the California State Department of Public Health and Local Health Department.
  - c. California Occupational Safety and Health Act (CAL/OSHA).
  - d. Rules and regulations of the State and Local Fire Marshals.
  - e. Safety Orders of the Industrial Accident Commission, State of California.
  - f. National Electric Code.
  - g. Uniform Plumbing Code.
  - h. All laws governing the employment of labor, posting of minimum wage rates, and accident prevention.
  - i. Americans with Disabilities Act, Federal law.
2. Requirements of enforcing authorities may supersede requirements of the above laws and regulations, and nothing in the Contract Documents shall be construed to permit work not conforming to applicable codes.
3. All of the above laws and regulations are as much a part of this contract as if they were incorporated in their entirety herein.

C. **BID AND PAYMENT BOND:**

General Contractor shall take out and maintain Bid and Labor/Payment bonds as indicated herein. The Bond requirement will vary based on the project proposal. The following criteria will determine Bond Requirements.

1. Bid Bond/Security. Proposals shall be accompanied with a Bid security 10% of project

amount for all contracts \$15,000 or more.

- a. Each bid/proposal shall be accompanied by a bid security pursuant to Public Contracts Code 20674, in cash, a certified or cashier's check, or bid bond in an amount not less than 10 percent of the total bid price payable to the Owner. The bid security shall be given as a guarantee that if awarded the contract the bidder will execute and return the Construction Agreement within 10 working days after award of the contract and will furnish on the prescribed forms a satisfactory Payment
  - b. (Labor and material) Bond and separate Performance Bond, in accordance with the Contract Documents and Civil Code Section 3248, and certificates evidencing that the required insurance is in effect in the amounts set forth in the Contract Documents. In case of refusal or failure to timely execute the Construction Agreement and furnish the required bonds and insurance certificates, the bid security shall be forfeited to the Owner. If the bidder elects to furnish a bid bond as its bid security, the bidder shall use the bid bond form included in the Contract Documents, unless the Owner elects to waive the use of the form provided, in its sole discretion.
2. Payment and Performance Bond. 100% of contract amount for all contracts \$25,000 or more.
- a. The Payment and Performance Bonds which the successful bidder as Contractor will be required to execute are included in the Contract Documents and should be carefully examined by the bidder. The Payment Bond shall be in an amount not less than 100 percent of the amount of the contract in accordance with Civil Code Section 3248. The successful bidder as Contractor will also be required to furnish a separate Performance Bond in the amount of 100 percent of the contract amount. Sufficient bonds shall be fully executed and returned to Owner with the executed Construction Agreement.

D. INSURANCE REQUIREMENTS:

1. Evidence of Insurance: Before the work is started, the Contractor shall forward to the District Certificates of Insurance and all the Contractual Liability coverage called for in the Contract Documents is in force, and specifically covers this particular Contract with the Owner, including the hold harmless requirements. In addition, the Certificates shall contain the following:
  - 1) "No cancellation of this policy or endorsement of same shall be effective until; until the thirtieth (30th) day following the receipt of notice of such cancellation of the policy or endorsements by the Owner."
  - 2) Certificates of Insurance shall contain transcripts from the policies authenticated by the proper office of the Insurer, evidencing in particular those insured, the extent of the insurance, the location of and the operations to which the insurance applies, the expiration date and the thirty (30) day NOTICE OF CANCELLATION CLAUSE.
  - 3) Acceptance of the Certificates of Insurance shall not relieve or decrease the liability of the Contractor.
  - 4) In the absence of contrary written instructions from the District, the Contractor at the Contractor's expense, shall obtain and maintain insurance at all times during the prosecution of the Contract, in companies and through agencies approved by the District, and with limits not less than those stated hereinafter.
  - 5) The Contractor shall not commence work under this Contract until he has obtained and paid for all insurance required herein and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his Subcontract until such insurance required of the Subcontractor has been so obtained and approved.
2. Provide the following items with evidence of insurance for all insurance policies for this

project: The insurance required must be written by a Best Key Rating Guide "A" or better rated carrier admitted to write insurance in the state where the work is located at the time the policy is issued.

3. Indemnification

- a. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the District and the Consultants and their employees from and against all claims, damages, losses and expenses, including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss of expense is attributable to bodily injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting there from but only to the extent caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.
- b. In any and all claims against the District or the Consultants, or any of their employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or by any Subcontractor under workers compensation acts, disability benefit acts or other employee benefit acts.
- c. The obligations of the Contractor under this Paragraph shall not extend to the liability of the consultants or any of their agents or employees arising out of 1) The preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications, or, 2) the giving of or the failure to give directions or instructions by the consultants or any of their agents or employees, provided such giving or failure to give is the primary cause of the injury or damage.
- d. The Contractor to name the District, the consultants, its agents and employees as additional insured on the Contractor's policy or policies of comprehensive general liability insurance. Such insurance shall include products and completed operations and contractual liability coverages, shall be primary and non-contributing with any insurance maintained by consultants, or its agents and employees, and shall provide that the Consultant be given thirty days, unqualified written notice prior to any cancellation thereof.

4. Worker's Compensation Insurance

Contractor shall provide, during the term of this Contract, Worker's Compensation Insurance for all of his employees engaged in Work under this Contract, on or at the site of the project, and in case any of his work is sublet, Contractor shall require the Subcontractor to provide Worker's Compensation Insurance for all of his employees. Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by the Contractor's insurance. In case any class of employees engaged in work under this Contract, on or at the site of the project, is not protected under the Worker's Compensation laws, Contractor shall provide or cause a Subcontractor to provide, adequate insurance coverage for the protection of those employees not otherwise protected. Contractor shall file, with the Owner, certificates of insurance.

- a) The Worker's Compensation Insurance shall be written by a company California admitted in the State of California and shall be written for not less than the following, as established by the Owner, or greater if required by law.
- b) Provide employer's liability endorsements:
  - 1) State workers' compensation statutory benefits - policy limits of not less than \$1,000,000.00.
  - 2) Employer's Liability - policy limits of not less than \$1,000,000.00.

5. Comprehensive General Liability Insurance

Commercial General Liability Insurance in Contractor's name, with personal injury limits indicated herein for combined Single Limit per occurrence coverage and annual aggregate.



The policy is to be on a Comprehensive General Liability form and must include Contractual Liability endorsed to specifically cover an Indemnity Agreement contained in the Contract. The Comprehensive General Liability coverage may be provided on an "occurrence" form or a "claims made" basis. If the coverage is on a "claims made" basis, the policy shall provide for a non-cancelable 5 year extended reporting period.

- a) The Contractor shall carry such public liability and property damage insurance that will protect the Contractor, Owner, Architect and Engineers from claims for damages for bodily injury, including accidental death, as well as for claims for property damages, which may arise from operations under the contract whether such operations be by the Contractor or by any Subcontractor or anyone directly or indirectly employed by either party. The limits of coverage shall be as stated herein.
  - b) In the event that any suits, actions, or claims are brought against the Owner, Architect, and/or Architect's Consultants, money equal to the "claim amount may be withheld from payments due the Contractor under and by virtue of this contract as may be considered necessary by the Owner for such purpose. Money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that adequate public liability and property damage insurance has been obtained.
  - c) The policy shall include coverage for the following:
    - 1) Premises - operations
    - 2) Contractual liability
    - 3) Products
    - 4) Completed operations
    - 5) Broad form PD and including X, C and U coverage
    - 6) Personal injury
    - 7) Owners, contractor's protective
6. Automobile Liability Insurance: Automobile Liability Insurance with an Employer's Non-Ownership Liability Endorsement in the Contractor's name. Limits of liability shall not be less than amount indicated herein for Combined Single Limit per occurrence. Provide CSL, BI and PD coverage for owned, non-owned and hired autos.
- a) Provide owned, non-owned and hired automobile insurance endorsement.
7. Insurance Schedule
- a) Worker's Compensation Insurance per State of California policy limits of not less than \$1,000,000.00.
    - 1) Employer's Liability Endorsement \$1,000,000 min.
  - b) Comprehensive General Liability:
    - 1) Combined single limits for bodily injury and property damage:
      - \$1,000,000 - Each Occurrence
      - \$2,000,000 - Annual Aggregate
    - 2) Personal Injury, with Employment Exclusion deleted.
    - 3) Include coverage of the following:
      - i) Premises - operations
      - ii) Contractual liability
      - iii) Products
      - iv) Completed operations
      - v) Broad form PD and including X, C and U coverage
      - vi) Personal injury
      - vii) Owners, contractors protective
- E. ASBESTOS-CONTAINING PRODUCTS:
1. Contractor agrees that asbestos-containing products or materials will not be used or substituted in performing work under the Agreement.
  2. At the completion of work under this Agreement, Contractor will certify in writing to the Owner that, to the best of Contractor's knowledge, no asbestos-containing products or materials were used or substituted in performing work under the Agreement.

- F. PCB-CONTAINING PRODUCTS & LEAD PLUMBING ITEMS:
1. Contractor agrees that lead plumbing domestic water items, asbestos, PCB, -containing products or materials will not be used or substituted in performing work under the Agreement.
  2. At the completion of work under this Agreement, Contractor will certify in writing to the Owner that, to the best of Contractor's knowledge, no lead plumbing domestic water items, asbestos/PCB-containing products or materials were used or substituted in performing work under the Agreement.
- G. PREVAILING WAGE RATES AND APPRENTICESHIP REQUIREMENTS – All proposals that exceed \$1,000 shall be prevailing wage.
1. Wages and Employer Payments:
    - a) The general prevailing wage rates and employer payments for Health and Welfare, Pension, Vacation and similar purposes in the county in which the work is to be done shall be in accordance with the Labor Code of the State of California, Section 1770, et seq.
    - b) Copies of all collective bargaining agreements relating to the work as set forth in the aforementioned Labor Code are on file and are available for inspection in the Office of the Division of Labor Statistics and Research of the Department of Industrial Relations.
    - c) Employer payments as defined in Section 1773.1 of the Labor Code are to be paid in accordance with the terms of the collective bargaining agreement applicable to the type of classification of the workmen employed on the project and shall be the prevailing wage rate of the county in which the work is to be performed. Overtime shall be paid for the hours worked in excess of the working day and for time worked on Saturdays, Sundays and the seven (7) holidays which are to-wit:  
New Year's Day, Memorial Day, July Fourth,  
Labor Day, Veteran's Day, Thanksgiving Day  
and Christmas.  
The Contractor and any subcontractor under him shall comply with the requirements of Sections 1773.3, 1777.5, 1776 and 1777.6 in the employment of apprentices.
      - 1) The predetermined (double asterisk) changes are no longer a part of the general prevailing rates of per diem wages. The rates at the time of the proposal advertisement date of a project will remain in effect for the life of project.
      - 2) The definition of prevailing rate states that when there is no single rate paid to a majority of workers, then the prevailing rate is a weighted average.
    - d) Not less than the general prevailing wage rate for each classification of work State or Federal which is higher shall be paid by the general contractor and all subcontractors under him shall be paid to all laborers, worker and mechanics employed in the execution of such contract or subcontract there under, including rates for overtime and general holidays in the locality in which the work is to be performed.
    - e) The Contractor and all subcontractors under him shall make travel and subsistence payments to each workman needed to execute all the work as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Section 1773.8 of the Labor Code.
  2. Eight Hour Day: Contractor shall not permit any person employed by him to work overtime other than pursuant to express provisions of Section 1810 of the California Labor Code.
  3. Records of Hours Worked and Citizenship: The Contractor shall maintain records of the hours worked by his employees and their citizenship and they shall be open at all times for inspection by the County, Client and/or the Division of Labor Statistics and Law Enforcement, in accordance with Sections 1814 and 1552 of the California Labor Code.
    - a) The General Contractor shall maintain all certified payroll documents at their office.

Copies shall be provided to anyone who provides a request and Owner approves that request. Contractor shall provide copies within ten (10) days of approved request. Contractor shall provide copies, shipping cost, and all other related cost to provide this information at no cost to Owner. Contractor shall maintain certified payroll documents for seven (7) years after Notice of Completion.

4. Penalties: The Contractor shall forfeit as a penalty to said Owner, Fifty Dollars (\$50.00) for each laborer, workman or mechanic paid less than the above stipulated rates for any work under this Contract by him or any Subcontractor under him.
5. Enforcement and Verification off Requirements:
  - a) The records by the Contractor may be checked periodically by an independent enforcement agency to verify compliance with the labor codes and related items.
  - b) Jobsite interviews may be conducted periodically throughout the duration of the project. The Contractor shall allow access to the project and access to workers during working hours to confirm prevailing wage rates and apprenticeship requirements are followed.
  - c) Prior to executing the agreement, the Contractor shall provide verification of enrollment in an apprenticeship program per Sections 1773.3, 1777.5, 1776 and 1777.6 within the last 12 months.

H. Contractor License and DIR Registration Required.

To perform the work required for this project, Bidder must possess the type of contractor's license specified in the Notice to Proposers (Request for Proposal), and must be registered with the Department of Industrial Relations (DIR) as a public works contractor. Contractor registration can be accomplished through the portal <https://efiling.dir.ca.gov/PWCR/>. No CONTRACTOR or subcontractor shall be qualified to bid on, be listed in a bid proposal, subject to the requirements of § 4104 of the Public Contract Code, for a public works project (submitted on or after March 1, 2015) unless currently registered with the DIR and qualified to perform public work pursuant to Labor Code § 1725.5. No CONTRACTOR or subcontractor may be awarded a contract for public work on a public works project (awarded after April 1, 2015) unless registered with the DIR.

I. AWARD

District shall issue a purchase order, which shall be the notice to proceed. This will be issued only after receipt of required documents.

J. PRELIMINARY NOTICE:

Preliminary Notices must be filed with the Owner with a copy mailed to both the Consultants and the Contractor.



**CONTRACTOR'S CERTIFICATE REGARDING WORKER'S COMPENSATION:**

Labor Code Section 3700 provides:

"Every employer except the State and all political subdivision or institutions thereof, shall secure the payment of compensation in one or more of the following ways:

- "(a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this State.
- "(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees."

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Workers Compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with those provisions before commencing the performance of the work of this contract.

CONTRACTOR:

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By (type or print) Title Dated

(In accordance with Article 5 [commencing at Section 1860], Chapter 1, Part 7, Division 2 of the Labor Code, this certificate must be signed and filed with the awarding body prior to performing any work under this contract.)

**NON-COLLUSION AFFIDAVIT:**

State of California )  
 ) ss.  
County of \_\_\_\_\_ )

\_\_\_\_\_, being duly sworn, deposes and says:

That he or she is the \_\_\_\_\_(position)  
of \_\_\_\_\_(name of  
proposer), the party making the proposal; that the proposal is not made in the interest of, or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that the proposal is genuine and not collusive or sham; that the proposer has not directly or indirectly induced or solicited any other proposer to put in a false or sham proposal, and has not directly or indirectly colluded, conspired, connived, or agreed with any proposer or anyone else to put in a sham proposal, or that anyone shall refrain from submitting a proposal; that the proposer has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the proposal price of the proposer or any other proposer, or to fix any overhead, profit, or cost element of the proposal price, or of that of any other proposer, 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 proposal are true; and, further, that the proposer has not, directly or indirectly, submitted his or her proposal price or any price breakdown, or their contents, or divulged relative information or data, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, proposal depository, or to any member or agent thereof to effectuate a collusive or sham proposal.

\_\_\_\_\_  
(Firm Name)

\_\_\_\_\_  
(Printed Name - Authorized Agent)

\_\_\_\_\_  
(Signature - Authorized Agent)

Subscribed and sworn to before me on \_\_\_\_\_, 20 \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

NOTARY SEAL

**SUBCONTRACTOR LIST:**

Pursuant to the Provisions of the Public Contracts Code Sections 4100 to 4107 inclusive, every proposer shall set forth the name and location of the place of business of each subcontractor who will perform work or labor in or about the construction of the work or improvement in an amount in excess of one-half of one percent (1/2 of 1%) of the Proposers total proposal. If a Contractor is not listed and the work is more than one-half of one percent (1/2 of 1%) of the Proposers total proposal, he agrees to perform that portion himself. The following is the list of subcontractors:

<u>PORTION OF WORK</u>	<u>SUBCONTRACTOR</u>	<u>LOCATION OF BUSINESS</u>

I declare, under penalty of perjury, that information provided, and representations made in this proposal are true and correct and that this declaration was executed on \_\_\_\_\_, at \_\_\_\_\_, \_\_\_\_\_, California.  
(date) (city) (county)

Respectfully submitted,

\_\_\_\_\_  
Name of Firm

Corporate Seal  
If Applicable

\_\_\_\_\_  
Individual, Partnership, Corp.

Phone(\_\_\_\_\_)\_\_\_\_\_

By \_\_\_\_\_

Fax(\_\_\_\_\_)\_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_  
License Type & Number/Exp. date

**No proposal is valid unless signed by the person making the proposal.**

\*\* State whether your firm is a corporation, a co-partnership, private individual, or individuals, doing business under a firm name. If the proposer is a partnership, the proposal should be signed with the partnership name and by one of the authorized partners. If the proposer is a corporation, it should be signed by a person authorized to execute proposals on behalf of the corporation.

\* \* \*

**4.0 BID BOND**

Be advised that we, \_\_\_\_\_  
as Principal ("Principal") and \_\_\_\_\_

\_\_\_\_\_ a corporation duly licensed to transact business under the laws of the State of California as Surety ("Surety") are firmly bound to **WEST HILLS COMMUNITY COLLEGE DISTRICT** as Obligee ("Obligee") in the sum

of \$ \_\_\_\_\_ for the payment of which the Principal and the Surety bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, by this Bond.

The principal has submitted a proposal for \_\_\_\_\_  
*(list project on Proposal)*

The condition of our obligation is this: if the Principal is awarded the contract upon its proposal, and shall, within the required number of days after the notice of award, execute a contract with the Obligee in accordance with the contract documents, submit the required payment and performance bonds, and provide all other required documents, then this obligation shall be null and void; but in the event that the Principal fails and/or refuses to execute and deliver those documents, this bond will be charged with the costs of the damages experienced by the Obligee as a result of that refusal, including but not limited to, publication costs, the difference in money between the amount of the bid of the Principal and the amount for which the Obligee may legally contract with another party to perform the work if the amount is in excess of the former; building lease or rental costs, transportation costs, professional service costs, and additional salary costs that result from the delay due to the Principal's default on the awarded contract. In no event, however, shall the Surety's liability exceed the penal sum indicated above.

The Surety, for value received, stipulates and agrees that its obligations and its bond shall not be impaired or affected by an extension of the time within which the Obligee may accept such bid; and Surety waives notice of any time extension.

Dated: \_\_\_\_\_ PRINCIPAL  
By: \_\_\_\_\_  
Title: \_\_\_\_\_

Dated: \_\_\_\_\_ SURETY  
By: \_\_\_\_\_  
Title: \_\_\_\_\_



## **5.0 GENERAL CONDITIONS OF AGREEMENT**

- 1) The district will issue a Purchase Order for all work included in this Request for Proposal based on the Contractor's proposal to do certain work for the said Owner, specified and described in certain drawings and specifications, and entitled on the Bid Proposal, in strict accordance with drawings and specifications prepared and attached to RFP.
- 2) Whereas, the Contractor, before signing the enclosed proposal, has carefully read and examined in connection herewith said proposal and specifications and has carefully examined the site where said work is to be done, and has investigated the character of such work and the materials required to be furnished, and by reason of such reading, examination and investigation, the said Contractor agrees that he thoroughly understands the intent and meaning of this proposal and all component parts of said proposal and the requirements, covenants, stipulations and restrictions thereof.
- 3) In consideration of the promises and of the payments hereinafter to be made by the Owner to and on account of said Contractor, and the understanding of said Contractor to do said work the College and Contractor agree that:
  - a) This Contractor shall receive and accept the sum on proposal herein submitted, as full compensation for furnishing all materials and doing all the work contemplated and embraced in this Contract, and for furnishing all necessary tools, machinery, implements, apparatus and other means of construction; also all loss or damage arising out of the nature of the work to be done under said specifications, or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered during the progress of said work, and before the acceptance thereof by said Owner, and shall be responsible for the consequences of his own negligence or carelessness or discontinuance of the work, and for well and faithfully completing the work in the manner and according to the drawings and specifications and all requirements of the College and any and all parties having jurisdiction there over, for the whole thereof, the following sum which represents the Contract Price.
  - b) Payments: The Owner agrees, in consideration of the performance of this Contract, to pay the Contractor in the following manner:
    - i) Payments will be made only on the certificate of the Owners field representative.
    - ii) Monthly payments shall be made to the Contractor in amounts equal to ninety-five percent (95%) of the estimated value of the work done and the materials furnished and incorporated in the work during the month preceding the date upon which such value is estimated plus ninety-five percent (95%) of the estimated value of all materials which, on the date of estimation of value, are suitably stored on the site for incorporation into the work; provided that no such monthly payment, or payment of any kind, shall theretofore have been made for any such work done or materials furnished and incorporated or materials suitably stored on the site. The aforesaid estimation of value shall be made by the Owners Representative and noted by him upon the certificates furnished by him pursuant to paragraphs herein.
    - iii) Upon substantial completion of the work, a sum sufficient to increase the total payments to ninety-five percent (95%) of the Contract Price, less an amount determined by Owner to be adequate to complete any unfurnished part of the work by another Contractor should the work not be completed within a reasonable time established by the Owner.
    - iv) The final payment shall be made thirty-five (35) days after receipt of the recorded Notice of Completion date, provided that: The Contractor shall furnished satisfactory evidence that all claims for labor and materials have been paid and that no claims shall have been presented to the Owner by any person or persons based upon any act or omission of the Contractor, and no Stop Notices have been filed against said work or the property whereon it was done.
      - (1) No certificates given or payments made on account of any Contract shall constitute an acceptance of any equipment, material or work which may subsequently be found to be defective.
  - c) Time of Completion. The Contractor agrees to commence the work within five (5) calendar days from the date of the notice to proceed and/or purchase order. Failure to obtain approval of the required documents, within the allotted time, shall not be cause for extension of the time of construction as set forth hereafter.

- i) The Contractor further agrees to construct and execute all of the work described in said drawings, specifications, proposals, addenda and any and all other requirements, covenants, stipulations and restrictions, within 16 calendar days from and after the date of commencement, said date of commencement being agreed upon as the fifth (5th) calendar day following the date of the notice to proceed and/or purchase order. Owner shall issue actual start date to Contractor.
- ii) Both parties agree that the aforementioned stipulated contract period to be a reasonable time scale for completion of the work and Contractor will provide best endeavors to complete the work within the contract period.
- iii) If the Contractor shall neglect, fail or refuse to complete the work within the time herein specified, then the contractor does hereby agree, as a part consideration for awarding of this Contract to pay to the Owner the sum of:  
**Fifty Dollars - No Cents** DOLLARS (**\$50.00**) per day plus such additional costs as may be incurred by the College because of such delays, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth for each and every day that the Contractor shall be in default after the time stipulated in the Contract for completing the work.
- iv) The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amounts shall be retained from time to time by the Owner from the current periodical estimates.
- v) It is further agreed that time is the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due.
  - (1) To any preference, priority or allocation order duly issued by the Government.
  - (2) To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of the Contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, and
  - (3) To any delays of subcontractors occasioned by any of the causes specified in subsections (1) and (2) of herein. Provided, further, that the Contractor shall, within seven (7) days from the beginning of such delay, notify the Owner, in writing, of the causes of delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.
- d) Drawings and Specifications. This Contract, the drawings and the specifications have been prepared, and are intended to supplement one another. The drawings and specifications shall be deemed by this reference to be incorporated within this Contract, the drawings shall be deemed by this reference to be incorporated within the specifications, and the specifications shall be deemed by this reference to be incorporated with the drawings. In the event a conflict is found to exist between the drawings and specifications, the College shall interpret. In the event that the drawings and specifications, or either of them shall be found to conflict with this Contract, then this Contract shall be govern. Omissions from this Contract of items of provisions present in the specifications or drawings or either of them shall not be deemed a conflict within the meaning of this Article.
- e) Changes. Should the Owner, at any time during the progress of the work desire any alterations, or deviations in, or additions to, or omissions from the Contract or the drawings or specifications, said Owner, or representative thereof, shall be at liberty to order them, in writing, and the same shall in no way affect or make void this Contract, but the amount thereof shall be added to, or deducted from, the amount of the Contract Price aforesaid, as the case may be, by a fair and reasonable valuation. This Contract, subject to the provisions of Article II (a) hereof, shall be deemed completed when the work is finished in accordance with the original drawings and specifications, as amended by such changes, whatever may be the nature or extent thereof.
  - i) No such changes, whatever may be the nature, or modification shall release or exonerate any

surety or sureties upon any guarantee or bond given in connection with this Contract, if required.

- ii) Rules of Practice: The rule of practice to be observed in this Contract shall be that upon the demand of either the Owner or the Contractor, the character or valuation of any and all changes, omissions, or extra work shall be agreed upon and fixed in writing, signed by the Owner and the Contractor, prior to execution.
- f) Acceptance of Work. The payment of the progress payments by the Owner shall not be construed as an absolute acceptance of the work done up to the time of such payments, except as to such matters as are open and obvious, but the entire work, and at the time when it shall be claimed by the Contractor that the Contract and work is completed. Liability under the bonds is to continue for one (1) year from the date of acceptance and bonds will not be released until such date.
- g) Failure to provide workmen and materials. If the Contractor at any time during the progress of the work should refuse or neglect, without the fault of the Owner, to supply sufficient amount of materials or enough workmen to complete the Contract within the time herein set forth, due allowance being made for the contingencies provided for herein, for a period of more than seven (7) days after having been notified by the Owner in writing to furnish the same, the Owner shall have the power to furnish and provide said materials and/or workmen to finish the said work, and the reasonable expense thereof shall be deducted from the amount of the Contract Price.
- h) Penalties. This Contractor shall forfeit, as a penalty to the said Owner, the sum of fifty dollars (\$50.00) for each laborer, workman, or mechanic employed in the execution of this Contract, or any sub-contractor under him, for each calendar day during which such laborer, workman or mechanic is required or permitted to labor more than eight (8) hours in violation of Section 1810-1811, Chapter One, of Division Two, Part Seven of the Labor Code of the State of California, and said Owner, when making payments of money due under this Contract, shall withhold and retain there from all sums and amounts which have been forfeited pursuant to the herein said stipulation.
- i) Insurance and Bonds: Insurances and bonds, as set forth in the supporting contract documents, shall be maintained in effect during the period of this Contract.
- j) Relations to Bid Proposals: If proposal is accepted by owner, be it further stipulated and agreed that said Owner does promise and agree to employ the said Contractor to provide the materials and do the work according to the terms and conditions herein contained and referred to, for the prices aforesaid, and herein contracts to pay the same at the time, in the manner and upon the conditions set forth above; and the said parties for themselves, their heirs, executors, administrators, successors, and assigns, do hereby agree to the full performance of the covenants herein contained. It is further agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the bid proposal of said Contract, then this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said proposal conflicting herewith.
- k) Asbestos/PCB-containing products and lead plumbing items: Contractor agrees that lead plumbing domestic water items, asbestos, PCB, -containing products or materials will not be used or substituted in performing work under the Agreement. At the completion of work under the Agreement, Contractor will certify in writing to the Owner that to the best of Contractor's knowledge, no lead plumbing domestic water items, asbestos/PCB-containing products or materials were used or substituted in performing work under the Agreement.
- l) Compliance with air pollution and storm water prevention control rules: Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes which apply to any work performed pursuant to the Contract, including any air pollution control rules, regulations, ordinances, and statutes specified in Section 11017 of the Government Code, as well as local requirements, County, City, local Air Pollution Control Districts and Storm Water Prevention Districts. Contractor shall require all subcontractors to abide by these items.
- m) Contractor-Employee requirements: By submitting proposal, the Contractor certifies he is aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workmen's compensation or to undertake self-insurance in accordance with the provisions of that code, and that he will comply with such provisions before commencing the performance of the work of this Contract.
  - i) In accordance with the provisions of Section 3700 of the Labor Code, every contractor will be

- required to secure payment of compensation to his employees.
- ii) The Contractor and Subcontractors under him shall comply with the provisions of Division 2, Part 7, Chapter 1, Article 2, Sections 1770-1780 with particular reference to the employment and use of apprentices and other provisions that require him to make travel and subsistence payments to each workman needed to execute the work, as such collective bargaining agreements filed in accordance with the Labor Code, and to pay not less than the minimum per diem wages as determined by the Director of the Department of Industrial Relations, on file in the principal office of the Owner.
  - iii) Special attention is directed to Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code and Title 8, California Code of Regulations Section 200 et. seq. Each contractor and/or subcontractor must, prior to commencement of the public works contract, contact the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, or one of its branch offices regarding apprentices and specifically the required ratio there under. Responsibility for compliance with this section lies with the prime Contractor. During the performance of this Contract, the Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin.
- n) Notices: All notices herein provided to be given or which may be given by either party to the other shall be deemed to have been fully given when made in writing and deposited with the United States Postal Service, Registered or Certified, and postage prepaid and addressed as follows:
- i) Owner, person and address on title sheet of RFP.
  - ii) Contractor, person and address on proposal submitted by contractor herein.
  - iii) The address to which the notices shall or may be mailed as aforesaid to either party shall or may be changed by written notice given by such party to the other, as hereinbefore provided, but nothing herein contained shall preclude the giving of any such notice by personal service.

## **6.0 PROJECT SCOPE**

### A. PROJECT DESCRIPTION:

### PART 1 - GENERAL

#### 1.1. SUMMARY

The West Hills Community College District (WHCCD), West Hills College Coalinga has a requirement to remove and replace the existing roof at Building E. The Contractor will include all labor, materials, equipment and necessary rigging to complete the work located at 300 Cherry Lane, Coalinga, CA 93210. To this end, WHCCD, West Hills College Coalinga requires quotations for a licensed contractor to complete the proposed modifications.

#### Intent:

Requirements in this SOW serve as a direction to the Contractor for the roof replacement Building E at West Hills College Coalinga. The Contractor shall perform all services in accordance with professional standards of skill, care and diligence adhered to by reputable, first class international firms and shall conform to generally accepted professional practices and to all applicable codes.

### B. WORK SEQUENCE :

1. Schedule building shutdown with M&O Director. All work to each building to be performed as scheduled so as not to interrupt any instruction.
2. The Work will be conducted in one phase to provide the least possible interference to the activities of the Owner's personnel and to permit an orderly transfer of personnel and equipment to the new facilities. Installation must be complete when building is vacant and/or a Friday afternoon. Contractor may have weekend access if so desired.

### C. CONTRACTOR USE OF PREMISES:

1. General: Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public.
  - a. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
  - b. Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
2. Use of the Existing Building: Maintain the existing building in a weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

### D. OWNER OCCUPANCY:

1. Full Owner Occupancy: The Owner will occupy the site and existing building during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with the Owner's operations.

### E. GENERAL SCOPE OF WORK:

1. Contractor to inspect project site and inspect existing conditions/utilities.
2. Scheduling of work to be coordinated with college M/O Director.
3. Provide all necessary labor, tools and equipment to complete work within time frame stated in contract.
4. Contractor to inform Owner one (1) week before work is completed to schedule testing and inspection.
5. Work areas shall be cleaned / cleared on a daily basis. All construction debris to be removed from site upon completion of work by contractor.

**F. SCOPE OF WORK:**

1. Coordinate schedule with M&O Director once materials have been ordered so a lead time is identified.
2. See attachment (7.0) for scope of work.

**CONTRACTOR PROVISIONS:**

The Contractor shall supply everything necessary for the execution and completion of the work including Site preparation and installation performance shall be in accordance with all building codes and standards

**WORKING HOURS:**

Working hours are to be 6am to 6pm. No work is to take place outside these hours unless Director M&O has given agreement.

**SITE PREPARATION AND CLEANING UP**

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the College. Unightly materials and debris including excess soil, garbage, and equipment should be removed as required; while materials should be scheduled for delivery only as required for immediate use.

**7.0 ATTACHEMENTS**

1. SECTION 07 54 16 FULLY ADHERED 60 mil KEE MEMBRANE ROOFING SYSTEM

**-----End of Document-----**

## SECTION 07 54 16

### FULLY ADHERED KEE MEMBRANE ROOFING SYSTEM

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Provide all labor, materials, and equipment to install the fully adhered 60 mil KEE membrane roofing system over the properly prepared metal substrate.
- B. Provide membrane roofing system as indicated on the drawings and is hereby defined include non-traffic-bearing fully adhered Ketone, Ethylene, Ester (KEE) membrane roof system intended for weather exposure as primary roofing.
- C. Install new roof systems as specified.
- D. Install new flashings and metal edging as specified.

##### 1.02 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specification Sections apply to this section.
- B. Related work specified elsewhere:
  - 1. Division 6 Section "Rough Carpentry" for wood blocking and nails.
  - 2. Division 7 Section "Preparation for Roofing."
  - 3. Division 7 Section "Roof and Deck Insulation."
  - 4. Division 7 Section "Flashing and Sheet Metal."
  - 5. Division 7 Section "Roof Specialty and Accessory Items."
  - 6. Division 7 Section "Joint Sealers."

##### 1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. D 6754 – 02 Standard Specification for Keytone Ethylene Ester Based Sheet Roofing
  - 2. D 751 - Standard Test Methods for Coated Fabrics.
  - 3. E 108 - Standard Test Methods for Fire Testing of Roof Coverings.
- B. Federal Specifications (FS):
  - 1. FS 101B, Method 2031 - Puncture

- C. Underwriters Laboratories, Inc. (UL)
  - 1. UL 790: Tests for Fire Resistance of Roof Covering Materials
  - 2. UL Fire Resistance Directory
- D. American Society of Civil Engineers (ASCE):
  - 1. ASCE Standard 7-10
- E. ANSI/SPRI- testing and certification metal edge and coping

#### 1.04 SYSTEM DESCRIPTION

- A. Fully Adhered high performance KEE Membrane Roofing System:
  - 1. Provide all labor, materials, and equipment necessary to deliver and install a complete Fully Adhered KEE Membrane Roofing System as specified and where indicated in project drawings.
  - 2. Provide labor, materials, and equipment necessary to deliver and install rigid insulation and cover board as specified and where indicated in project drawings.

#### 1.05 SUBMITTALS

Submit under provisions of Section 01 33 00 - Submittals.

- A. Submit certification that the roof system furnished is approved by Factory Mutual, Underwriters Laboratories or Warnock Hersey for external fire E-108 Class 1A and that the roof system is adhered properly to meet or exceed 1-90. To be determined by ASCE-7 wind uplift testing in conjunction with an independent adhesion review of installed products.
- B. Product Data for each type of product specified include manufacturer's technical product data, installation instructions, and recommendations for each type of roofing product required. Include data substantiating that materials comply with specified requirements.
- C. For all KEE fully adhered membrane roofing including independent test data according to ASTM designation D-4434 "Standard Test Methods for Sampling and Testing KEE membranes" substantiating the materials comply with specified requirements.
- D. Any material submitted as an equal to specified material must be in the form of a formal request 10 days prior to bid due date. Submit a list of 5 jobs where the proposed material has been used in a similar roofing system application as that which is specified and within a one hundred mile radius from the location of the specified job. In addition, the 5 jobs must be at least 5 years old and be available for the Architect, Owner, or Owner's Representative to inspect. The material substituted must meet or exceed that which is specified.



- E. Show evidence that the products and materials are manufactured in the United States and that materials provided conform to all requirements specified herein, and are chemically and physically compatible with each other and are suitable for inclusion within the total roof system specified herein. Provide stamped calculations from a registered engineer stating the system as designed will meet all performance criteria and that the system will perform as specified. The certified letter must include wind uplift results confirming fastener spacing and roof system attachment.
- F. Show evidence that the Installer specializes in heat welding roof application with a minimum 5 years experience and who is certified by the roofing system manufacturer as qualified to install manufacturer's roofing materials. The installer must also show evidence that they have installed a minimum of 5 jobs using the specified roofing manufacturer that has been in place for no less than 5 years.
- G. Shop Drawings:
  - 1. Submit installation details of roofing and flashing, including seam layout, roof slopes, flashing details, penetration details, and accessories.
  - 2. Submit shop drawings detailing roof configuration and sheet layout, details at perimeter, and special conditions.
  - 3. Submit flashing details for each flashing condition.
- H. Provide a sample of each product.
  - I. Certified copy of ISO 9002 compliance.
  - II. Submit Certification from *Manufacturer* that the membrane for the project meets the definition for a KEE membrane found within Section 4. **Material and Manufacturer and minimum physical and chemical requirements (Table 1) of ASTM Standard D 6754.**
  - III. Any deficiencies in performance, warranty terms or improper submittal procedure will constitute grounds for immediate rejection of alternate.
- J. Maintenance Data:
  - 1. Submit *Membrane Manufacturer's* recommended maintenance procedures for roofing system, including precautions and warnings to prevent damage and deterioration to Membrane Roofing System.
- K. Unexecuted Manufacturer's Warranty.

#### 1.06 QUALITY ASSURANCE

- A. Qualifications of *KEE Manufacturer*:
  - 1. Membrane Roofing Membrane used in the work included in this section shall be produced by a highly reputable *KEE Membrane Manufacturer*, regularly engaged, without interruption, in the manufacture of the specified KEE Membrane Roofing.

2. KEE Membrane Roofing Membrane used in the work must be manufactured / produced using a minimum 50% KEE compound with out reliance upon extractable DOP (Di Oxyl Phalate) *liquid* plasticizer for flexibility
3. KEE Membrane Roofing Membrane must have a successful performance record.
4. KEE Membrane Roofing Membrane must have been manufactured and commercially sold, without a significant formulation change, for a minimum of ten (10) years.
5. The same manufacturer of the KEE membrane roofing system must provide the modified membrane, edge metal and coping systems. The manufacturer must certify that they can incorporate both systems under a single source warranty.
6. A letter from a registered engineer employed by the manufacturer must supply a stamp certifying they have reviewed all elements, performed necessary calculations and thoroughly reviewed the specifications and drawing for compliance of the project which include but are not limited to deck properties and pull out values, perlin configuration and spacing, interfacing of KEE to modified and other elements that may effect the overall performance of the installation.

B. Authorized Roofing Contractor Qualifications:

1. Firm experienced in application or installation of systems similar in complexity to those required for this project.
2. Authorized, in writing, by *Roof System Manufacturer* prior to bid.
3. Minimum 5 years experience with specified system.
4. Successful completion of a minimum 5 projects of comparable scale and complexity.
5. An adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
6. Maintain full-time supervisor/foreman, not workman/foreman, on job site during times that roofing work is in progress. Supervisor must have minimum of three years experience in roofing work similar to the nature and scope specified.
7. A new and complete roofing installation is required by these specifications. An installation with an excess number of patches, splices, or small pieces will not be accepted. Such an installation shall be completely removed and replaced with the specified quality of workmanship at no additional costs to the Owner.
8. Authorized Roofing Contractor shall have a repair crew or shall contract with a repair crew within a 50-mile radius of the project.

- C. A technician employed by the roofing manufacturer with a minimum of at least 3 years of project management experience involving modified roofing systems shall be required to inspect the work in progress a minimum of three times per week. Employees of distributors or manufacturers reps not directly employed by the manufacturer will not meet the criteria of inspector.  
Sales

representative of manufacturers who do not inspect roof work in progress as part of their normal job description do not fall within the criteria. The manufacturer shall supply weekly job inspection reports with photographs to the contractor. The contractor is to supply all detailed reports with his application for payments. Each report must be signed by the manufacturer's inspector stating he/she has reviewed all work and all work has been installed according to manufacturer's requirements.

Manufacturer to provide wind uplift calculations pertaining to the job.

D. Project Acceptance

1. Authorized Roofing Contractor shall submit a completed and approved *Manufacturer's* request for warranty form along with required shop drawings of the roof(s) showing all dimensions, penetrations, and details.
2. The request for warranty form shall contain all pertinent information applicable to the project including:
  - a. Deck type(s)
  - b. Insulation type(s)
  - c. Fastener type(s)
  - d. Membrane assembly and type.

E. Product / Material Qualifications

1. Test Reports
  - a. UL Class A Fire Hazard Classification
2. Roof insulation: Approved in writing by *Membrane Manufacturer* as acceptable substrate for this Project and listed by UL for required fire rating.
3. Use only those materials and methods of installation specifically approved by *Membrane Manufacturer*.

F. Regulatory Requirements:

1. General Contractor / Roofing Contractor shall conform to regulations of public agencies, including specific requirements of the city, county, or state of jurisdiction.
2. IBC-2003
3. CA State Code
4. UL Class A Fire Hazard Classification

G. Installer's Field Supervision: Require Installer to maintain a full-time Supervisor/Forman on the job site during all phases of KEE membrane roofing work and at any time roofing work is in progress: proper supervision of workers shall be maintained. A copy of the specification shall be in the possession of the Supervisor/Foremen and on the roof at all times.

- H. Disqualification of Bidders: A Bidder can be disqualified by the Architect or Owner for any of the following reasons, but not limited to:
1. The failure to attend the Pre-Bid conference at the time and place so described under Bidding Dates.
  2. Incorrect use of the "Proposal" as provided by the Architect/Owner. Any changes in said format shall be accepted by the Architect/Owner only when requested and approved in writing prior to the bid opening. Changes in the Proposal after the opening of the bids will not be accepted. Submission of bid using products not approved by architect a minimum of 10 days prior to bid.
  3. Lack of proficiency as shown by past work or incomplete work under other contracts, which, in the judgment of the Architect/Owner, might hinder or prevent the prompt completion of additional work if so awarded or any involvement in any legal actions, which relate to past or present performance. This includes, but is not limited to, lawsuits, court appointed actions, and/or ongoing litigation.
- I. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- J. Pre-application Roofing Conference: Approximately 2 weeks before scheduled commencement of KEE membrane roof system and associated work, meet at Project site with Installer, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in the around roofing that must precede or follow roofing work (including mechanical work if any), Architect/Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, test agencies, and governing authorities. Objectives to include:
1. Review foreseeable methods and procedures related to roofing work.
  2. Tour representative areas of roofing substrates (decks) inspect and discuss condition of substrate, roof drains, curbs, penetrations, and other preparatory work performed by other trades.
  3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
  4. Review roofing systems requirements (drawings, specifications, and other contract documents).
  5. Review required submittals, both completed and yet to be completed.
  6. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  7. Review required inspection, testing, certifying, and material usage accounting procedures.
  8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).

9. Record (contractor) discussion of conference, including decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
10. Review notification procedures for weather or non-working days.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

##### A. Delivery

1. Deliver all packaged materials to the job site in their original, unopened container with all labels intact and legible at the time of the inspection.
2. Labels shall contain manufacturer's material name, date of manufacturer and lot number.

##### B. Storage and Protection

1. All materials shall be stored raised above the deck or ground and covered with tarps or similar "breathable" covers. Covering shall be secured to resist wind and weather. Factory wrappings or clear polyethylene film shall not be used as sole coverings
2. All adhesives, primers, and caulking shall be stored between 50 degrees F. and 80 degrees F. Primers, caulking, and adhesive exposed to freezing temperatures shall not be used and shall be removed from the job site.
3. Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.
4. All material, which becomes wet, broken, damaged or otherwise unsuitable for use in a top quality installation shall be promptly marked and removed from the site. Work found to be installed using damaged materials shall be removed and replaced at the General Contractor / Roofing Contractor's expense.

#### 1.08 PROJECT CONDITIONS

##### A. Environmental Requirements:

1. Weather Condition Limitations: Do not apply roofing membrane during inclement weather or when precipitation is expected. Do not apply roofing insulation or Membrane to damp surface.
2. KEE thermoplastic Membrane Roofing, flashing, insulation, and adhesives shall not be applied when the surrounding air and surface temperature, relative humidity, or wind velocity is not within the range acceptable under the *Manufacturer's* recommendations.
3. Cements and adhesives shall not be exposed to temperatures lower than 40 degrees F. for no more than four hours, or such other minimums published by respective manufacturers.

4. Do not expose membrane and accessories to constant temperature in excess of secondary materials only as recommended by manufacturer of the primary material, as specified.
  5. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day. The existing building and its contents shall be protected against all risks.
  6. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements. Any stored roof materials that become damaged or exposed to the elements in any way will be rejected and shall be removed from the project site.
  7. Uninterrupted water stops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work.
  8. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment moving and storage. Where such access is required, the Contractor shall provide the necessary protection to prevent damage to the new roofing.
  9. Remove all dirt, dust, and debris from all surfaces to receive new materials.
  10. The Contractor shall take all necessary precautions that storage and/or application of materials and or equipment does not overload the roof deck or building structure. Do not store roofing materials on the roof deck.
  11. The Contractor shall immediately stop work if any unusual or concealed condition is discovered that will preclude installation of the roof system as specified. The Contractor shall make sure that roof is weather tight and notify the S.U.C.F. in writing of such condition.
  12. Site clean up of both interior and exterior building areas that have been affected by construction shall be completed to the satisfaction of the S.U.C.F.
  13. Keep all primers, fuels, sealants, adhesives, and cleaning materials away from all ignition sources (i.e. torches, flames, sparks, etc.).
  14. The Contractor shall consult container labels and Material Safety Data Sheets for specific safety requirements.
- B. The Drawings are generic and not based on a specific manufacturer. Detail deviations will be accepted so as to permit utilization of the selected *Manufacturer's* standard products and details when, in the Owner / Owner's Representative's judgment, such deviations do not materially detract from design concept or intended performance.
- C. Manufacturers(Basis of Design)
1. Viking Products Group a Division of The Garland Company
  2. Representative – Caleb Gagliardi [cgagliardi@garlandind.com](mailto:cgagliardi@garlandind.com)  
559-916-8230
- D. Maintain materials and equipment, on-site in sufficient quantity necessary to apply emergency, temporary edge seals or covers in the event of sudden storms or inclement weather.

## 1.09 MANUFACTURER'S INSPECTIONS

- A. When the project is in progress, the Roofing System Manufacturer will provide the following:
  - 1. Keep the Architect informed as to the progress and quality the work as observed.
  - 2. Provide job site inspections a minimum of 3 days a week.
  - 3. Report to the Architect in writing, any failure, or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.
  - 4. Confirm, after completion of the project and based on manufacturer's observations and tests, that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.
  - 5. Provide contractor weekly reports with photographs of prior weeks work. Failure of the contractor to submit manufacturer's reports with application for payment may cause for rejection of payment.

## 1.10 SEQUENCING AND SCHEDULING

- A. Perform roofing and flashing work as a single integrated unit of work, without division of responsibility between separate installers.
- B. Install new KEE Membrane Roofing System immediately after insulation installation.
- C. All insulation shall be covered with KEE Membrane Roofing at the end of each workday.
- D. In the event of unforeseen inclement weather, installed insulation shall be covered with temporary waterproofing covers.
- E. Authorized Roofing Contractor shall complete roofing work on a daily basis with each section completed before progressing to the next day's work, unless specifically directed otherwise by the owner's representative.
- F. Completion of work shall be defined as the installation of all specified roof preparation, insulation, field membrane, flashing, counter flashing, sheet metal, fasteners, and caulking.

## 1.11 SYSTEM PERFORMANCE CRITERIA

- A. Design installation for a wind velocity at pressures as calculated using test method set by following ASCE 7-10.
- B. Velocity pressure for the perimeters and corners shall be increased by multiplying the field design velocity pressure by minimum coefficients of -2 and -3 respectively.

- C. Plate and fastener spacing calculations are to be performed by a Technical Customer Service Representative of *the KEE Membrane Manufacturer*.
- D. Calculations for fastener spacing are to accompany the bid.
- E. Installation shall have a Class A fire rating.

#### 1.12 WARRANTY

- A. As part of the work of this section, pay all required fees, secure all required inspections, and complete all items necessary to secure and deliver to the owner the *contractor will* provide a 3 year, labor-and-material warranty.
- B. The roof system manufacturer shall provide a "Full system warranty" for a period of 20 years from Date of Substantial Completion.
- C. Warranty shall be limited to repairs, or replacement, as required to maintain the KEE Membrane Roofing System in a watertight condition.
- D. Exclusions, listed under Terms and Conditions of the Warranty, shall conform to generally accepted industry standards except for the following:
  - 1. Warranty shall contain no exclusion for "gale" force winds.
  - 2. Warranty shall contain no exclusion for ponding water.
- E. The warranty for both the modified membrane and the KEE membrane roof system shall be issued by one single manufacturer. Joint warranties between two separate manufacturers or private labeling agreements will not be acceptable.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Obtain primary a 60 mil thick, reinforced, KEE thermoplastic Membrane Roofing from a single manufacturer and provide secondary materials only as recommended by the manufacturer of primary material specified.
- B. The drawings are generic and not based on a specific manufacturer. Detail deviations will be accepted to permit utilization of the selected *Manufacturer's* standard products and details when, in the Owner / Owner's representative's judgment, such deviations do not materially detract from design concept or intended performance.
- C. Acceptable Manufacturers: Viking Products Group by division of Garland Company. Representative Caleb Gagliardi 559-916-8230
- D. Basis of Design: Whenever a particular make of material, trade name and/or manufacturer's name is specified herein, it shall be regarded as being indicative of the minimum standard of quality required. A bidder who



proposes to quote on the basis of an alternate material and/or system will only be considered if the proposed alternate is submitted on time and is documented as being equivalent or superior in quality to the specified system as described in these specifications. Additionally, all manufacturer and contractor/fabricator guidelines must be met as specified. Please refer to the quality assurance and the submittal section for a list of required information.

- E. Product names for the metal roof panel system and waterproofing materials used in this section shall be based on performance requirements from materials manufactured by **Viking Products Group, Cleveland Ohio a division of Garland Industries** and form the basis of the contract documents. Any proposed alternate systems must meet or exceed the following listed characteristics and be submitted for approval 8 days prior to bid opening. Additionally, all performance requirements listed in "Design Criteria" (Section 1.8) and Warranty Criteria (Section 1.9) must be met and submitted as well as all items listed in the Manufacturer's Qualifications (Section 1.4).

2.02 ROOF INSULATION AND RELATED COMPONENTS

- A. Non-combustible Roof Insulation: Rigid closed-cell polyisocyanurate insulation board specially designed for use over Class 1 Decking, consisting of polyiso foam core, chemically bonded to non-asphaltic glass fiber facings. NOT APPLICABLE
  - 1. Acceptable products as supplied
    - a. FM approved rigid insulation meeting Class 1-90, for fire and wind.
    - b. UL Listed as Class A.
    - c. Design R-value: 0
    - d. Compressive Strength 20psi (minimum)
- B. Cover Board: Minimum 3/4" inch Dens-Deck Prime.

2.03 MEMBRANE ROOFING MEMBRANE

- A. Fully Adhered Membrane Roofing shall be an 18 x 19 / 840 x 1000 denier weft inserted polyester reinforced Ketone Ethylene Ester (KEE) coated membrane 60 mil conforming to the following minimum physical characteristics as listed in Table 1 of ASTM D 6754-02.

<u>MATERIAL PROPERTY</u>	<u>ASTM TEST METHOD(S)</u>	<u>RESULTS</u>
Thickness, min	D-751 (inches)	0.60
Thickness over fiber, min	Optical Method	0.006
Breaking strength, strip	D-751 (lbs.)	300
Elongation at break, strip	D-751 (%)	15
Tear Strength, min	D-751 Procedure B (lbs.)	100
Lineal dimension change, max	D-1204 (%)	0.5
Fabric adhesion, min.	D 751 (lb/in)	13
Heat aging	D 3045	

Breaking strength , strip	% of original	90
Elongation at break, strip	% of original	90
Low temperature bend	after heat aging	pass
Low temperature bend	D 2136 at -30°F	pass
Seam Strength	D 751 Grab (lbf)	400
Puncture Resistance	Fed. Std. 101B / Method 2031 (lbs)	250
<u>MATERIAL PROPERTY</u>	<u>ASTM TEST METHOD(S)</u>	<u>RESULTS</u>
Hydrostatic resistance, min	D 751 (psi)	500
Static puncture	D 5602	pass
Dynamic puncture	D 5635	pass
Accelerated weathering	G 155 (5,000 h Xenon Arc)	
	Cracking (7 x magnification)	none
	Crazing ( 7 x magnification)	none
Accelerated weathering	G 155 (5,000 h QUV)	
	Cracking (7 x magnification)	none
	Crazing ( 7 x magnification)	none
Fungi resistance	G 21, 28 days	
	Sustained growth	no growth
	Discoloration	none
Abrasion test, min., cycles	D 3389	1500
Without cracking or leaking		

#### 2.04 FLASHING MATERIALS

- A. Flashing materials shall be supplied by the membrane *Manufacturer* or shall be approved in writing by the membrane *Manufacturer*.
- B. Flashing materials shall be the same material as the roofing membrane or membrane coated metal unless specified differently.
  - 1. Flashing to be 60 mil, reinforced KEE Membrane Membrane.
  - 2. Drain flashing to be minimum 60 mil non-reinforced KEE Membrane Membrane.

#### 2.05 ACCESSORIES

- A. The following products are supplied by the membrane *Manufacturer* and shall be incorporated into the roof assembly where noted in approved shop drawings.
  - 1. Bonding Adhesive: VOC Solvent based, contact type, bonding adhesive, designed for bonding Membrane Membrane(s) to clean and dry, pre-approved horizontal or vertical substrates.
  - 2. Sealant: To seal flashing termination(s), a one-component gun-grade polyurethane sealant.
  - 3. Pourable Sealer: A topping to seal "pitch pans," a one component pourable, self leveling,
  - 4. Coated Metal: To fabricate metal flashing, 4' x 10' sheets of 24-gauge hot dipped G-90 steel, laminated with a 15 mil polymeric coating.
  - 5. Pre-Molded Flashing: Vent stack and inside/outside corner flashing, thermal-formed from non-reinforced KEE Membrane.
  - 6. Non-Reinforced Membrane: Field fabrication membrane, 80 mil non-reinforced KEE Membrane

7. Walk Way: (30" x 42' x 5/32" thick roll) High-grade vinyl walk way material with ribbed "slip resistant" design.
8. Fastening Devices:
  - a. Heavy Duty #15: To secure insulation and membrane to steel & wood decks. Heavy duty threaded steel, #3 phillips truss, and self-tapping corrosion resistant fastener. Factory Mutual approved.
  - b. Concrete Spike: To secure insulation and membrane to structural concrete decks. Hard carbon steel, hammer-in, non-threaded fastener. Factory Mutual approved.
  - c. Threaded Nylon: To secure insulation and membrane to gypsum and cementitious fiber decks. Threaded, glass-filled nylon fastener with locking wire barbs. Factory Mutual approved.
  - d. FTR Magnum oval membrane plates: Used to anchor membrane, are two inches in diameter, manufactured from 22-gauge AZ-55 galvalume steel with a 0.260-inch diameter hole in its center. The plate has two circular stamping 0.093 inches in height and four "barbs," 0.05 inch deep on the bottom of the plate.
  - e. Termination Bar: Membrane flashing restraint / termination / compression seals, nominal 1/8" x 1" x 10' 6060-T5 extruded aluminum bar with pre-punched slots, 8" o/c.

B. Adhesive(s) for Insulation Attachment

1. General Insulation Adhesive: membrane manufactures standard adhesive to adhere roof insulation boards.
  - a. Membrane manufacturer shall certify, in writing, that the specified adhesive meets identifiable code requirements, ASTM D 412, and is compatible with the insulation and vapor retarder (if applicable) and is approved for its intended use.
  - b. Adhesive shall be listed and approved by Factory Mutual Research or UL. in conjunction with the specified insulation and specific substrate.
  - c. Adhesive shall exceed uplift code requirements for individual substrate and insulation combinations.
  - d. Membrane manufacturer shall provide written specifications regarding the safe handling, storage, and surface preparation for a quality application of the product.
  - e. Membrane manufacturer shall provide applicable adhesion warranty to the roofing system manufacturer for the performance of their product.
  - f. Provide **Garland Insul-Lock HR Insulation Adhesive**.

## 2.06 RELATED MATERIALS

- A. Wood Nailers: Treated wood nailers shall be installed at all perimeter locations as noted on approved drawings.
  - 1. Wood nailers shall be treated for fire and rot resistance, #2 quality or better lumber. Creosote or asphaltic-treated wood is not acceptable.
  - 2. Wood nailers shall be secured to the substrate to resist a minimum 300 pounds per linear foot.
  - 3. All wood nailers shall have a maximum moisture content of 19 percent by weight on a dry basis.

## 2.07 ROOF INSULATING MATERIALS

- A. General: Provide flat and tapered insulating materials to comply with requirements indicated for materials and compliance with referenced standards; in sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths. 5/8" DensDeck Prime board fully adhered in Insul-Lock Insulation Adhesive.

## PART 3 - EXECUTION

### 3.01 EXAMINATION OF SURFACES

- A. The Authorized Roofing Contractor shall inspect the roof deck and surfaces to receive new materials, prior to commencement of the roofing work, and shall notify the Architect in writing of any defects observed. Roofing work shall not proceed until any such defects are corrected to the satisfaction of the Architect. Materials shall not be installed over rough, uneven, or improperly prepared surfaces.
- B. Commencement of work by Authorized Roofing Contractor shall constitute acceptance of the existing conditions as suitable for the successful completion of the work.
- C. It is the intent of this specification that the roofing system be installed as a complete assembly. Installation shall not proceed until all nailers and blocking are in place, all openings in the roof deck are permanently supported with steel framing, all curbs, skylights, smoke vents, and similar equipment are on the project site ready for installation, and all work of other trades on the roof is completed to the extent practical.
- D. General Contractor / Roofing Contractor shall provide suitable protection for any completed areas of roof if additional work is required in these areas. If the new roofing system is distorted, stained, compressed, or otherwise damaged prior to completion of the entire project, General Contractor / Roofing Contractor shall replace the involved areas at no additional cost to the Owner.
- E. Authorized Roofing Contractor shall keep all roof areas free of trash, debris, and excess materials at all times. Roofing Contractor shall supervise the

work of all trades to prevent damage to the completed roofing system and to prevent the accumulation of scraps, metal shavings, fasteners, tools, etc. which could puncture the roof membrane. Accumulation of debris of any type on the Membrane roofing System shall require removal and replacement of the affected areas, if required by the Architect / Owner.

- F. Inspect decking before work is commenced for projections, inadequate anchorage, low areas, incorrect slopes, holes or voids, foreign materials and other unacceptable conditions. Correct defects in surfaces prior to commencing work.
- G. Perform pull tests on decking and nailers using proposed fasteners. Perform a minimum of five (5) tests for each condition of installation (field, perimeter, and corner), for each 20,000 sq. ft. of roof or portion thereof, and for each distinct roof area (and building). Perform additional tests necessary to isolate and rectify failures. Pull tests are not required for new Class 1 Decking. (min. 22 ga. steel, min. 3/4 in. treated plywood, min. 300 psi. concrete)
- H. Examine the areas and conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of work. Do not proceed until such conditions have been corrected.

### 3.02 PREPARATION:

- A. A dry, clean, and smooth substrate shall be provided to receive the fully-adhered Membrane Roof System.
- B. Coordinate with work specified in other Sections to assure proper and timely phasing.
- C. Coordinate installation so each area is made 100 percent watertight at the end of each work period.
- D. Verify that all preparatory work detailed in this specification has been completed.
- E. Surfaces scheduled to receive roofing are to be free of any water, frost, snow, or loose debris.
- F. Substrate is to be smooth, free of sharp projections, and free of obvious depressions.
- G. Install and prepare vents, drains, curbs, supports, and other projections through roof deck. Protect adjacent surfaces not designated to receive roofing.
- H. Seal cracks, joints, and mating surfaces with recommended material and sealant. Use proper depth-width ratio as recommended by the sealant manufacturer.

- I. Clean surfaces of foreign matter detrimental to installation of Membrane Roofing.
- J. All necessary metal fittings are to be in place before roofing.
- K. All required nailers shall be securely installed prior to roofing.
- L. All surfaces must be free of physical contact with any bituminous surfaces, clean, and smooth.

### 3.03 WOOD NAILERS

- A. Install continuous treated wood nailers at the perimeter of the entire roof and around roof projections and penetrations as specified on project drawings and approved shop drawings.
- B. Nailers shall be anchored to resist a minimum force of 300 pounds per linear foot in any direction.
- C. A 1/2 inch space shall be provided between nailer lengths. Nailer lengths shall not be less than 3 feet long.
- D. Nailer attachment shall conform to current Factory Mutual Loss Prevention Data Sheet 1- 49.
- E. Thickness shall be as required to match substrate or insulation height to all allow for a smooth, flush condition.

### 3.04 VAPOR BARRIER INSTALLATION

- A. None

### 3.05 INSULATION INSTALLATION

- A. The insulation manufacturer's technical specifications shall form part of this specification and shall be used as a reference for specific application procedures.
- B. Adhere insulation over prepared substrate per manufacturer's recommendations.
- C. Install first layer of insulation with long joints continuous and short staggered.
- D. Install second layer of insulation traverse to first layer but staggered joints between layers not less than 6 inches.
- E. Insulation surface shall not be ruptured or damaged by mechanical fastening. All damaged panels shall be removed in their entirety and replaced.
- F. Warped or bent insulation boards shall not be used.
- G. Cut insulation neatly to fit around penetrations and projections.

- H. Develop tapered insulation system as indicated on project drawings and approved shop drawings.
- I. Joints in insulation boards shall not exceed 1/4 inch in width.

### 3.05 INSTALLATION OF ROOFING MEMBRANE

#### A. General Requirements:

1. The Membrane Roofing System shall be installed by *Roof Manufacturers* trained and Authorized Roofing Contractor. All *Membrane Manufacturer's* installation instructions and recommendations shall be strictly followed.
2. The methods of installation shall be in strict accordance with the approved details submitted on the shop drawings.
3. It is the intent of the drawings and specifications that the design details shall be followed precisely, being modified only where specifically required to meet field conditions or *Membrane Manufacturer's* warranty requirements.
4. Utilize details approved by *Membrane Manufacturer* for roof wall junctures and penetrations that are not specifically detailed on the project drawings.
5. Take precautions to ensure that water does not flow beneath any sections of completed roof.
6. At no time shall any portion of the assembly be exposed to moisture. If temporary seals are not installed on a daily basis, Authorized Roofing Contractor shall be required to remove and replace any completed roof area, to the deck, for a minimum distance of 10 feet from the edge or until dry materials are found, whichever is greater, at no additional cost to the Owner.
7. Membrane must be totally installed over all insulation installed in any given day. This includes sealant, flashing and trim. Failure to complete flashing and seam welding on a daily basis will be cause for rejection of the installed roof and will require replacement of the areas involved.

#### B. Lay-out:

1. Membrane shall be installed in a neat and orderly fashion.
2. Unroll and position roofing membrane, without stretching, over the approved substrate. Rolls of Membrane Roofing are to be positioned and installed straight and snug but not taut.
3. Adjoining rolls shall overlap three (3) inches, properly shingled with the flow of water where possible.
4. When using pre-fabricated panel rolls, stagger the factory seams to prevent adjacent welds from falling on top of one another.
5. When using conventional roll goods, stagger the roll ends to prevent adjacent welds from falling on top of one another.

#### C. Attachment:

1. Design pressures shall be determined in compliance with procedures outlined within ASCE Standard 7-93.
2. All stress plates must set completely on the membrane allowing a minimum of 1/2 inch from the edge.
3. Allow a minimum of 2 inches from the edge of the stress plate(s) to the leading edge of the overlapping membrane to allow sufficient room to facilitate welding.

D. Welding:

1. All field seams exceeding 10 ft. in length shall be welded with an approved automatic welder.
2. All field seams must be clean and dry prior to initiating any field welding.
3. Remove foreign materials from the seams (dirt, oils, etc.) with Acetone, MEK, or authorized alternative. Use CLEAN WHITE COTTON cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder. Do not use denim or synthetic rags for cleaning.
4. All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.

E. Perimeters

1. The perimeter area of any particular roof shall be defined as the outer parallel boundary of the roof section or edge. Projects having variable roof levels shall treat the outer boundary of each level as a perimeter. Internal expansion joints, firewalls, or adjoining building walls greater than 4 feet are not considered perimeter areas.
2. The width of the perimeter area shall be calculated to be either ten percent of the width of the roof section or forty percent of the building or section height above ground, whichever ever is less to a minimum of 4 ft.
3. Where field design pressures exceed -30 psf, perimeter enhancement shall be required.
4. Perimeter enhancement shall be accomplished by either adding additional rows of fasteners through the top of the membrane system within the perimeter area or through the use of half rolls of membrane installed within the perimeter area, appropriately fastened to accommodate enhanced velocity pressures.
5. Utilization of half rolls "perimeter sheets" shall effectively increase the fastener density within the perimeter area to 50% that of the field of the roof. However, fastener spacing for the perimeter sheets shall not exceed that of the field sheets.

F. Flashing

1. All flashing are to be totally bonded. Loose flashing will not be approved.



2. Flashing are to extend a minimum of 4" and a maximum of 8" onto the roof membrane. The splice must be sealed at least 3 inches beyond the fastener.
3. The membrane is to be secured at the roof perimeter, curbs, walls, and all projections and at changes in plane greater than 15 degrees.
4. Pitch pans are to be avoided. Prior approval is required for pitch pan use.
5. Existing drain bowls and rings to be cleaned. Broken or missing strainers, rings, and hold-down to be replaced.
6. Flashing shall be secured at the top edge with fasteners spaced a maximum of 8 inches on center under metal counter flashing or cap.
7. Flashing to be as per details drawing when shown.

G. Inspection of Membrane and Flashing

1. Inspect completed membrane and flashing for punctures, tears and discontinuous welded seams.
2. Apply additional layer of membrane with rounded corners over punctures and tears, extending a minimum of 2 inches beyond damaged area in all directions.
3. Re-weld seams that were not originally welded, making sure to expose the entire "cold welded" area.
4. Apply additional layer of membrane with rounded corners over contaminated seam areas.

3.06 TEMPORARY SEALING DURING CONSTRUCTION

- A. At the end of each working day or at the sign of rain, install temporary, 100% watertight seal(s) where the completed new roofing adjoins the uncovered deck or existing roof surface.
- B. The Authorized Roofing Contractor shall create and maintain the temporary seal in such a manner to prevent water from traveling beneath the new and / or existing roof system.
- C. The use of plastic roofing cement is permissible when sealing to an existing built up roof.
- D. If water is allowed to enter beneath the newly completed roofing, the affected area(s) shall be removed and replaced at no additional expense to the building owner.
- E. Prior to the commencement of work, cut out and remove all contaminated membrane, insulation roof cement, or sealant and properly dispose of off site.

3.07 ROOF DRAINS

- A. Use tapered insulation around roof drain to provide smooth transition from roof surface to drain clamping ring.
- B. The practice of "shaving" roof insulation to create taper is not permissible.

- C. Follow *Membrane Manufacturer's* approved details for installation of membrane flashing at roof drains.
- D. Seal between membrane and the drain bowl as recommended by *Membrane Manufacturer*.

### 3.08 SHEET METAL

- A. Sheet metal work is specified under Section 7600 but Authorized Roofing Contractor shall examine metal work, and not commence work until metalwork which precedes roofing work is satisfactory.
- B. Metal work done after roofing shall be done under direct supervision of this section.
- C. Coated "Clad" Metal
  - 1. All perimeter edge details are to be fabricated from vinyl-coated metal as provided by *Membrane Manufacturer*.
  - 2. Insure all fascia are minimum 2 inches lower than the bottom of the wood nailers.
  - 3. Fasten all metal flashing to wood nailers or approved substrate with approved fasteners 8 in. O/C.
  - 4. Break and install coated metal in accordance with approved details, insuring proper attachment, maintaining 1/2 in. expansion joints and the installation of a minimum 2" bond breaker tape prior to sealing the joint..
  - 5. Seal metal expansion joints with a 5" strip of Membrane Roofing Membrane welded to the coated metal.

### 3.09 FIELD QUALITY CONTROL

- A. Authorized Roofing Contractor QC
  - 1. Authorized Roofing Contractor will initiate a QC program to govern all aspects of the installation of the new fully adhered Membrane Roof System.
  - 2. The project foreman and or supervisor will be responsible for the daily execution of the QC program, which will include but is not limited to the supervision, inspection and probing of all heat welding incorporated within the Membrane Roof System.
  - 3. If inconsistencies in the quality of the welds are found, all work shall cease until corrective actions are taken to insure the continuity of all field and detail welding.
- B. *Membrane Manufacturer's* Field Service
  - 1. During installation, provide 3 days a week on-site inspection by technical representative of *Membrane Manufacturer* to comply with warranty requirements.

2. Site visits and field notes during inspections shall be included in the project job log.
3. Copies of the inspection reports shall be forwarded to the Architect at the end of each week's site visits.
4. Upon completion of installation, provide final inspection by technical service representative of *Membrane Manufacturer* to confirm that roofing system has been installed in accordance with *Membrane Manufacturer's* requirements.

### 3.10 ADJUSTING

- A. Restore to original condition or replace work or materials damaged during handling and installation of roofing membrane.

### 3.11 CLEANING

- A. The Authorized Roofing Contractor shall clear the construction areas and shall provide for all necessary removal from the building site of all construction debris associated with the installation of the Membrane Roof System.
- B. All debris shall be removed from the premises promptly and the construction area left clean daily.
- C. General Contractor / Authorized Roofing Contractor is responsible to insure that subcontractors have properly removed and disposed of all debris relating to their contract.

**END OF SECTION**

## SECTION 07 62 00

### SHEET METAL FLASHING AND TRIM

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. Section Includes:
  - 1. Manufactured reglets with counterflashing.
  - 2. Formed roof-drainage sheet metal fabrications.
  - 3. Formed low-slope roof sheet metal fabrications.
  - 4. Formed steep-slope roof sheet metal fabrications.
  - 5. Formed wall sheet metal fabrications.

##### 1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For sheet metal flashing and trim.
  - 1. Include plans, elevations, sections, and attachment details.
  - 2. Distinguish between shop- and field-assembled work.
  - 3. Include identification of finish for each item.
  - 4. Include pattern of seams and details of termination points, expansion joints and expansion-joint covers, direction of expansion, roof-penetration flashing, and connections to adjoining work.
- C. Samples: For each exposed product and for each color and texture specified.

##### 1.03 SUBMITTALS

- A. Product certificates.
- B. Product test reports.
- C. Sample warranty.
- D. Maintenance data.

##### 1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
  - 1. For copings and roof edge flashings that are SPRI ES-1 tested, shop shall be listed as able to fabricate required details as tested and approved.

## 1.05 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Finish Warranty Period: 20 years from date of Final Completion.

## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Sheet Metal Standard for Copper: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- D. SPRI Wind Design Standard: Manufacture and install copings, roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressure:
  - 1. Design Pressure: As indicated on Drawings.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

### 2.02 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
  - 1. As-Milled Finish: Mill
  - 2. Factory Prime Coating: Where painting after installation is required, pretreat metal with white or light-colored, factory-applied, baked-on epoxy primer coat; minimum dry film thickness of 0.2 mil.

3. Clear Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
  4. Color Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
    - a. Color: To be selected by Architect.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, dead soft, fully annealed; 2B (bright, cold rolled finish).
- D. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet according to ASTM A 653/A 653M, G90 coating designation; prepainted by coil-coating process to comply with ASTM A 755/A 755M.
1. Exposed Coil-Coated Finish:
    - a. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  2. Color: As selected by Architect from manufacturer's full range.

### 2.03 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.
- B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F; and complying with physical requirements of ASTM D 226/D 226M for Type I and Type II felts.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Atlas Roofing Corporation; Summit.
    - b. Engineered Coated Products; Nova-Seal II.
    - c. SDP Advanced Polymer Products Inc; Palisade.
- C. Self-Adhering, High-Temperature Sheet: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Carlisle Residential, a division of Carlisle Construction Materials; WIP 300HT.
  - b. Grace Construction Products, a unit of W. R. Grace & Co.-Conn.; Grace Ice and Water Shield HT.
  - c. Henry Company; Blueskin PE200 HT.
  - d. Kirsch Building Products, LLC; Sharkskin Ultra SA.
  - e. Metal-Fab Manufacturing, LLC; MetShield.
  - f. Owens Corning; WeatherLock Specialty Tile & Metal Underlayment.
  - g. Polyguard Products, Inc.; Deck Guard HT.
  - h. Protecto Wrap Company; Protecto Jiffy Seal Ice & Water Guard HT.
  - i. SDP Advanced Polymer Products Inc; Palisade SA-HT.
2. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F or higher.
3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F or lower.

D. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

#### 2.04 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
  1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
    - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
    - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
  2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
  3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.

4. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.
- C. Solder:
1. For Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
  2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead with maximum lead content of 0.2 percent.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- 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. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- H. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
- I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

## 2.05 MANUFACTURED REGLETS

- A. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
    - a. Cheney Flashing Company.
    - b. Fry Reglet Corporation.
    - c. Heckmann Building Products, Inc.
    - d. Hickman, W. P. Company.



- e. Hohmann & Barnard, Inc.
  - f. Keystone Flashing Company, Inc.
  - g. National Sheet Metal Systems, Inc.
- 3. Material: Galvanized steel, 0.022 inch thick.
  - 4. Finish: Mill

## 2.06 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
  - 1. Obtain field measurements for accurate fit before shop fabrication.
  - 2. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
  - 3. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
  - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
  - 2. Use lapped expansion joints only where indicated on Drawings.
- C. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.
- F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- G. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

## 2.07 ROOF-DRAINAGE SHEET METAL FABRICATIONS

- A. Accessories: Continuous, removable leaf screen with sheet metal frame and hardware cloth screen.
- B. Built-in Drain Sump: Fabricate to cross section required, with riveted and soldered joints, complete with end pieces, outlet tubes, and other special accessories as required.
  - 1. Accessories: removable leaf basket with sheet metal frame and hardware cloth screen
  - 2. Fabricate from the Following Materials:
    - a. Stainless Steel: 0.0781 inch thick.
- C. Downpiping and overflow drains: Fabricate round downpipes and overflow drains to dimensions indicated, complete with curved elbows. .
  - 1. Fabricate from the following materials:
    - a. Cast Iron: Schedule 80 pipe
- D. Conductor Heads: Fabricate conductor heads with flanged back and stiffened top edge and of dimensions and shape required, complete with outlet tubes. Fabricate from the following materials:
  - 1. Galvanized Steel: 0.0785 inch thick.

## 2.08 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof Edge Flashing (Gravel Stop): Fabricate in minimum 96-inch- long, but not exceeding 12-foot- long sections. Furnish with 6-inch- wide, joint cover plates.
  - 1. Fabricate from the Following Materials: All roof edge flashing are to be supplied by Roofing Manufacturer to match metal roofing and or metal siding.
    - a. Aluminum: 0.0641 inch thick.
    - b. Stainless Steel: 0.0781 inch thick.
    - c. Galvanized Steel: 0.0785 inch thick.
- B. Copings and Parapet Caps:
  - 1. Fabricate from the Following Materials: All copings and parapet caps are to be supplied by Roofing Manufacturer to match metal roofing and or metal siding.
- C. Base Flashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:
  - 1. Galvanized Steel: 0.0396 inch thick.
- D. Counterflashing and Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.0396 inch thick.
- E. Roof-Penetration Flashing: Fabricate from the following materials:
1. Stainless Steel: 0.025 inch thick.
  2. Galvanized Steel: 0.028 inch thick.
  3. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.
- F. Roof-Drain Flashing: Fabricate from the following materials:
1. Stainless Steel: 0.025 inch thick.

## 2.09 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following materials: To be supplied by Roofing Manufacturer to match metal roofing and or metal siding
- B. Valley Flashing: Fabricate from the following materials: To be supplied by Roofing Manufacturer to match metal roofing and or metal siding
- C. Drip Edges: Fabricate from the following materials: To be supplied by Roofing Manufacturer to match metal roofing and or metal siding
- D. Eave, Rake, Ridge, and Hip Flashing: Fabricate from the following materials: To be supplied by Roofing Manufacturer to match metal roofing and or metal siding

## PART 3 - EXECUTION

### 3.01 UNDERLAYMENT INSTALLATION

- A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.
- B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, according to manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.
- C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days.

### 3.02 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  - 3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
  - 4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
  - 5. Torch cutting of sheet metal flashing and trim is not permitted.
  
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
  - 1. Coat concealed side of uncoated-aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
  
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
  - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
  - 2. Use lapped expansion joints only where indicated on Drawings.
  
- D. Fasteners: Use fastener sizes that substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
  
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
  
- F. Seal joints as required for watertight construction. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 - Joint Sealants.

- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not solder metallic-coated steel and aluminum sheet.
  2. Do not use torches for soldering.
  3. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
  4. Stainless-Steel Soldering: Tin edges of uncoated sheets, using solder for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
- H. Rivets: Rivet joints in uncoated aluminum where necessary for strength.

### 3.03 ROOF-DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.
- B. Hanging Gutters: Join sections with riveted and soldered joints. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchor them in position. Provide end closures and seal watertight with sealant. Slope to downspouts.
1. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet apart. Install expansion-joint caps.
  2. Install continuous gutter screens on gutters with noncorrosive fasteners, removable for cleaning gutters.
- C. Built-in Gutters: Join sections with riveted and soldered joints. Provide for thermal expansion. Slope to downspouts. Provide end closures and seal watertight with sealant.
1. Install underlayment layer in built-in gutter trough and extend to drip edge at eaves and under underlayment on roof sheathing. Lap sides minimum of 2 inches over underlying course. Lap ends minimum of 4 inches. Stagger end laps between succeeding courses at least 72 inches. Fasten with roofing nails. Install slip sheet over underlayment.
  2. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet apart. Install expansion-joint caps.
- D. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c.
- E. Splash Pans: Install where downspouts discharge on low-slope roofs Set in asphalt roofing cement or elastomeric sealant compatible with the substrate.

- F. Parapet Scuppers: Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
- G. Conductor Heads: Anchor securely to wall, with elevation of conductor head rim at minimum of 1 inch below scupper or gutter discharge.
- H. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated. Lap joints minimum of 4 inches in direction of water flow.

#### 3.04 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate.
- C. Copings: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated.
- D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless-steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints minimum of 4 inches.
- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with butyl sealant and clamp flashing to pipes that penetrate roof.

#### 3.05 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches beyond wall openings.

### 3.06 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

**END OF SECTION**