Invitation for Bid
AEPA #025-D

Roofing & Building Envelope Services

BID SECURITY REQUIRED: $25,000

Part A – Instructions and Specifications

Notice to Respondents

Solicitation offers will be received by the Association of Educational Purchasing Agencies (AEPA) on behalf of its Member Agencies until:
September 17, 2024, at 1:30 p.m. ET

For Solicitations: Roofing & Building Envelope Services
Each package consists of multiple parts:

- **Part A – Instructions and Specifications**
- **Part B – AEPA General Terms and Conditions**
- **Part C – Member Agency (State) Terms and Conditions**
- **Part D – Questionnaire**
- **Part E – Signature Forms**
- **Part F – Discount & Pricing Workbook**

All offers must be submitted online via the Bonfire eProcurement website by the due date and time listed above. AEPA solicitation documents can be downloaded after registering, at no cost, on Bonfire at https://aepacoop.or/registration-solicitations/ .

AEPA and/or the respective Member Agencies reserve the right to reject any or all offers in whole or in part; to waive any formalities or irregularities in any offers, and to accept the offers, which in its discretion, within state law, are for the best interest of any of the AEPA Member Agencies and/or their Participating Entities. Note that Respondents must be able to provide their proposed products and services in up to 30 states including California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Texas, Virginia, Washington, West Virginia, Wisconsin, and Wyoming. Note that not all states participate in each solicitation. The complete list of participating states is found below.

Solicitations will be opened online on **September 17, 2024, at 1:30 p.m. ET.**

Bid & Contract Timeline:

August 1, 2024	Release of IFBs/RFP via Bonfire
August 19, 2024	Voluntary Pre-Bid Conference Call
August 30, 2024	Deadline for questions from Respondents
September 17, 2024 1:30 pm ET	Deadline for Submittals and Reading via Bonfire
September 19, 2024	Opening Record posted on the AEPA website, www.aepacoop.org
December 2-4, 2024	AEPA Approval of Offers
After December 4, 2024	Vendor Partners submit required documentation to AEPA Agencies
	Initial contract term–See Term of Contract and Extensions in General Terms & Conditions. Annual contract renewal dates subject to approval by AEPA

I. General Solicitation Procedures

A. Issuing Agency

The great benefit to the Vendor is that one response may be prepared for approval by AEPA and awarded by multiple AEPA Member Agencies and utilized by their Participating Entities located throughout many states. Solicitations may be issued as an IFB or an RFP depending on the category of goods/services being solicited. Respondents to a solicitation will submit their response in the required formats (PDF, Excel) of all files requested along with current pricing via Bonfire, a free online bidding platform, by the published due date and time. Respondents selected in response to this solicitation have the potential to provide products and services to local education agencies serving over 36,000,000 (excludes non-represented AEPA states) students, with additional local government agencies as permitted by state law.

Each AEPA Member Agency will individually publish notice of the solicitation. Respondents will submit responses online, electronically via Bonfire (https://aepacoop.org/registration-solicitations//). Instructions on registering for AEPA solicitations on Bonfire can be found on the AEPA website, www.aepacoop.org. Responses deemed complete at opening will be evaluated by solicitation category committees comprised of AEPA Member Agencies representatives who have indicated they will participate in the category of products and services being solicited, and after AEPA approval, individual AEPA Member Agencies may award contracts to the AEPA Approved Vendor Partners or reject their offers.

The procurement activities of AEPA are limited to document preparation, distribution of the solicitation, initial evaluation, and recommendation for possible approval to AEPA Member Agencies. AEPA consists of agency officials who have agreed to assist one another in meeting the public purchasing needs of local school districts and other political subdivisions.

Contracts awarded through cooperative purchasing must meet the procurement laws of the states of each AEPA Member Agency. When these laws are satisfied, an individual entity using these contracts is deemed in compliance with competitive procurement regulations. As allowed by specific state statutes, they can issue purchase orders for any amount without the necessity to prepare their own solicitation, Request for Proposal (RFP), or Request for Quotations (RFQ). This saves the entity time and allows for economical and efficient purchasing.

AEPA requires that Respondents only respond if they can offer prices equal to or better than what they ordinarily offer to individual entities or cooperatives with equal or lesser volume. State laws that permit or encourage cooperative purchasing contracts do so in the belief that it saves the participants both time and money. Time is saved by having access to volume discounted contracts publicly solicited and being able to purchase what is needed without having to wade through the solicitation process (write solicitation, advertise the solicitation, open each response, evaluate, and select). Money is saved in procurement cost

and lower prices will be the result of volume purchasing. Therefore, a contract issued by a cooperative can be used by hundreds of separate political units; but if it has the same or higher prices than what a single agency or state contract can get through its own solicitation, a cooperatively solicited contract may not be attractive to these members. **We request that Respondents respond with advantageous pricing and package so that together we can attract members to prefer the cooperatively awarded contract.**

The AEPA policy for membership permits new agencies to become AEPA Member Agencies upon approval of existing members. If additional Agencies are added, they and their members may procure from existing contracts upon approval of the awarded Vendor Partners and in accordance with their state laws.

B. Questions

All questions from Respondents must be submitted online through Bonfire, AEPA will not accept questions in any other format during the solicitation process. All questions received during the solicitation process will be available via Bonfire. All Respondents will be automatically notified through email when AEPA responds to a question asked by a potential respondent. It is the Respondent's responsibility to check Bonfire for any questions and answers before the deadline. Questions received after the question deadline date will not be answered.

Should AEPA issue addenda during the solicitation process, all Respondents will be automatically notified through email of the released addenda. AEPA is not responsible for Respondents not acknowledging the issued addenda and not submitting a response according to those changes.

Questions regarding this solicitation after Opening, but before the approval of the contract, should be submitted to questions@aepacoop.org.
Questions regarding this solicitation after Notification of Approval should be submitted to bid-committee@aepacoop.org.

C. Respondent Qualifications

An essential part of the solicitation process is an evaluation to qualify the company being considered. All solicitations must contain answers, responses, and/or documentation to the information requested in the documents. Any Respondent failing to provide the required information/ documentation may be considered non-responsive, this includes submitting a response not in the proper format.

Respondents must demonstrate their ability, capacity, and available resources to provide the proposed products and services to {90% of the AEPA Member Agencies indicating an interest in participating in the categories being solicited unless otherwise noted in Technical Specifications of the category being solicited. – Solicitations to edit when returned} The Respondents are required to communicate and demonstrate within their response they have extensive knowledge, background, and at least five (5) years of experience with manufacturing, obtaining, delivering, installing, maintaining, and/or supporting the product lines of products, equipment, services, or software offered. AEPA and/or its Member Agencies reserve the right to accept or reject newly formed companies or companies failing to demonstrate their abilities or capacity solely based on information provided in the solicitation response and/or its own investigation of the company.

D. Bid/Proposal Security

If required as noted at the top of this Part, bids or proposals must be accompanied by a satisfactory security bond. Please note that not all AEPA Bid categories require a security bond. If a security bond is required, a hard copy of the bid security must be in the possession of AEPA on or before the exact due date and time. Original copies of the security must be submitted to AEPA c/o LCSC, ATTN: Purchasing Dept, 1001 E Mt Faith, Fergus Falls, MN 56537 in a sealed envelope with the Solicitation Number, Solicitation Category, and Respondent's name and address clearly indicated on the envelope or box. A copy of the bid security must be submitted via Bonfire. AEPA will not reject a response from a Vendor whose bid bond has not arrived by the due date and time as long as a scanned copy of the bid bond dated prior to the due date is uploaded with their response and the actual bond is in transit.

An acceptable bid/proposal security will have the principal being the Respondent and the Association of Educational Purchasing Agencies listed as the Agency of Record. The Security may be a one-time bond underwritten by a surety company licensed to issue bonds in the state of Nevada and said surety to be approved in federal circular 570 as published by the United States treasury department or the equivalent in cash or an irrevocable letter of credit from a FDIC financial institution. The security bond must remain in force for one hundred twenty (120) days of the solicitation opening.

E. Solicitation Submittal

1. Preparation of the Response

a. The solicitation is published in multiple parts.
   i. Part A contains the solicitation instructions, and the technical specifications.
   ii. Part B is the general terms and conditions for all AEPA agencies.
   iii. Part C includes specific state terms and conditions. This is where you will find information about each AEPA state member and any specific procurement rules of each state.
   iv. Part D is a required Questionnaire found and completed in Bonfire.
   v. Part E and F are to be filled out in their entirety and submitted online via Bonfire in their required formats with the Respondent's offer. Some categories may request additional forms. All forms must be uploaded before the published solicitation due date and time of opening.

b. All responses must be on the forms provided by AEPA for each solicitation found in Bonfire unless otherwise noted. Respondents will submit all documents, in their required formats, online via Bonfire by the due date and time of the solicitation.

c. Forms requiring signatures must be submitted by the person authorized to sign the bid or proposal response. Failure to properly sign the solicitation documents may result in the offer being deemed non-responsive.

d. In case of an error in extension of prices in the solicitation, unit prices must govern.

e. Periods of time stated as a number of days must be in calendar days, not business days.

f. It is the responsibility of all Respondents to examine the entire solicitation package, to seek clarification of any item or requirement that may not be clear, and to check all responses for accuracy before submitting an offer. Negligence in preparing an offer confers no right of withdrawal after due time and date.

g. The Respondents' ability to follow the preparation instructions set forth in this solicitation will also be considered to be an indicator of the Respondents' ability to follow instructions should they receive an award as a result of this solicitation. Any contract between the AEPA Member Agency and a Respondent requires the delivery of information and data. The quality of organization and writing reflected in the offer will be considered to be an indication of the quality of organization and

writing which would be prevalent if a contract was awarded. As a result, the offer will be evaluated as a sample of data submission.

2. **Document Development:** Forms for this solicitation are published in Bonfire, in Excel, and PDF formats. Some forms (questionnaire) may be completed directly in Bonfire. Respondents must scan and upload all documents to Bonfire following the Solicitation Checklist, along with any additional documents or files other than those listed below that may be requested and/or related to the solicitation.
    a. **Part C – Member Agency (State) Terms and Conditions:** Some states require additional documentation and signature forms. Review Part C and submit the required state documents with your offer. Submit all state-specific forms as one (1) form in PDF format.
    b. **Part D – Questionnaire:** Complete directly in Bonfire. The questionnaire seeks information about the Respondent's pricing structure, service areas, past performance, and commerce processes. The Company Information form provides background information on the Respondent's company.
    c. **Part E – Signature Forms**: Complete the forms provided. The signature form includes multiple areas where signatures are required. Submit the form as one (1) individual form in PDF format.
    d. **Part F – Discount & Pricing Workbook:** Complete the Excel workbook provided. Title the Excel document as per the instructions in Document Development above. Be sure to complete the required tabs as outlined in Part F.

3. **Price Lists and/or Catalogs:** For catalog bids, Respondent's most recent catalog(s) or price lists must be included. If a hard copy is submitted, it should be in pdf format. Links to online pricing are acceptable as long as pricing is included, not just descriptions of product.

4. **Solicitation Transmittal**
    a. It is the responsibility of the Respondent to be certain that its submittal has been uploaded in its entirety to Bonfire, on or prior to the exact published due date and time.
    b. If a security bond is required (noted at the top of Part A), a hard copy of the security must be in the actual possession of AEPA c/o LCSC, ATTN: Purchasing Dept, 1001 E Mt Faith, Fergus Falls, MN 56537, on or before, the exact due date and time and a copy must be submitted via Bonfire. Original copies of the security must be submitted in a sealed envelope properly addressed to the Association of Educational Purchasing Agencies, with the Solicitation Number, Solicitation Category, and Respondent's name and address clearly indicated on the envelope or box. AEPA will not reject a response from a Vendor whose bid bond has not arrived by the due date and time as long as a scanned copy of the bid bond dated prior to the due date is uploaded with their response and the actual bond is in transit.
    c. If the designated location for receiving the bid or proposal security is closed due to an unforeseen circumstance on the day the security is due (due date), the security will be due at the same time on the next day the building is open.
    d. Responsive offers will be opened, and the name of each Respondent and other appropriate information will be posted on the AEPA website.

F. **Solicitation Evaluation, Approval, and Award:** Solicitation responses received will be evaluated in accordance with acceptable standards of cooperative procurement, set forth in

and governed by the Procurement Codes of AEPA Member Agency's states; AEPA by-laws, policies, and procedures; AEPA Member Agencies' policies and procedures.

For IFB categories, approval of prospective Vendor Partners and recommendation of contracts will be made to the lowest responsive and responsible Respondent utilizing the criteria listed in this solicitation. As a reminder, AEPA recommends offers to Respondents. Final contract awards are subsequently made by individual AEPA Member Agencies.

1. **Responsive Offer:** A responsive offer reasonably and substantially conforms to all material requirements of the solicitation. Offers must be responsive and approved by AEPA to receive award consideration by AEPA Member Agencies. To be determined responsive, the response must meet all of the requirements below:
    a. Submitted on time.
    b. Materially satisfy all mandatory requirements identified throughout the solicitation.
    c. Must substantially conform to all of the specified requirements in the solicitation in the judgment of AEPA and its AEPA Member Agency representatives.
    d. Any deviation from requirements indicated herein must be stated, in writing, and included with the offer submitted. Otherwise, it will be considered that responses are in strict compliance with all requirements, and any successful vendor will be held responsible, therefore.
    e. Deviations or exceptions stipulated in response may result in the offer being classified as non- responsive. Language to the effect that the Respondent does not consider this solicitation to be part of a contractual obligation will result in that Respondent's offer being disqualified. Terms of the solicitation that any Respondent considers particularly unwarranted, and to which that would have to take significant exception in his/her offer, should be stated clearly and concisely as exceptions and/or deviations.
    f. In preparing a proposal, the Respondent's inability to follow the proposal preparation instructions set forth in this solicitation and its inability to provide written responses, narratives, requested and support documentation relating to the Respondent's qualifications; abilities; capacity; products; specifications; delivery, installation, setup, maintenance; support services and pricing utilized by AEPA evaluators may result in the Respondent's offer to be deemed non-responsive.

2. **Non-responsive Offer:** Any offer that does not conform to all material requirements of the solicitation including, but not limited to: offers received after the deadline; offers that do not contain required items and/or provided in the format required, such as proper and/or signed forms, pricing, catalogs, electronic files; offers that do not contain the proper security bond where required; failure to meet the specified qualifications, product specifications, stipulated documentation or pricing equal to or better than individual entities or cooperatives with equal or lesser volume. AEPA reserves the right to request documents that do not affect pricing, waive minor irregularities, and/or seek clarification following its Board approved procedures. Offers deemed non-responsive will not be considered for approval and award.

3. **Responsible Respondent:** A responsible Respondent is a firm or person with the qualifications, capability, and capacity to perform the contract requirements with integrity and reliability, which will assure good faith performance. As a part of the process of determining responsible respondents during the evaluation period, the category committee may request reports that describe the financial soundness of your organization. You may be asked to include a third-party report or reports that demonstrate your firm's strength. Accepted financial reports may include balance sheets and Profit & Loss statements for the past three years, a Letter of Credit or Line of Credit from a bank or

lending institution indicating the line of credit limit and the average outstanding balance, Dun & Bradstreet reports, a complete Annual Financial Report (for publicly traded companies).

AEPA's approval of a response will make the Respondent available for consideration to the AEPA Member Agencies for contract award. Factors to be considered in determining whether the standard of responsibility has been met may include but is not limited to whether a Vendor Partner has:

a. Submitted a responsive offer;
b. The qualifications stipulated in this solicitation, such as adequate financial resources, production or service facilities, personnel, service reputation and experience to make satisfactory delivery of the products, services, or construction;
c. A demonstrated and documented satisfactory track record of performance in the national marketplace;
d. A satisfactory record of integrity and a reputation of responding to and meeting educational and local government institutions' needs, adherence of and compliance with federal, state, local and industry standards, rules, regulations, and codes;
e. Quality and suitability of products and services offered to meet and perform to the specifications, expectations, and requirements identified in this solicitation;
f. Supplied all necessary information and data in connection with determining whether a Respondent meets the standard of responsibility.

4. Cost Evaluation:

a. Cost and price schedules conform to and provide the information required in this part of the bid or proposal;
b. Pricing offered that is equal to or better than what they ordinarily offer to individual entities or cooperatives with equal or lesser volume;
c. Methodology used by AEPA and its AEPA Member Agencies to approve prospective Vendor Partners and award contracts;
    i. Line-Item/Construction Bid: Lowest responsive, responsible Bidder(s). Based on the cost evaluation, a recommendation will be made to approve a single Bidder or make a multiple Bidder award. The evaluation committee may consider such factors as life-cycle costs, total cost of ownership, quality, and the suitability of an offering in meeting AEPA members' needs; or
    ii. Catalog Bid: Lowest responsive, responsible Bidder(s) is/are determined based on the price evaluation criteria; and by a "Core List" and/or by creating a "Market Basket Study" to compare overall pricing between Respondents. A "Market Basket" is a list of items typically purchased by AEPA Member Agencies and their Participating Entities that represent a cross-section of the types of those items purchased. The selection and quantity of line items evaluated will be at the sole discretion of the AEPA evaluators. Based on the cost evaluation, a recommendation will be made to approve a single Bidder or make a multiple Bidder award. The evaluation committee may consider such factors as life-cycle costs, total cost of ownership, quality, and the suitability of an offering in meeting AEPA members' needs.
    iii. Proposal: Identified weighted criteria for evaluation, including pricing, published in this part of the solicitation.

G. Contract Award and Implementation

An AEPA category committee will perform initial response review and evaluation and will prepare and make a recommendation to AEPA for its consideration and approval. Those selected Respondents who are approved by AEPA will then be considered by the individual AEPA Member Agencies for contract award. It should be noted that once AEPA has approved the response, a Respondent becomes a "Vendor Partner" for AEPA.

All respondents will be notified of the outcome of the solicitation. Vendors recommended for award by AEPA states will be posted on the AEPA website.

Once the approved Respondents have been notified, it is their responsibility to contact those AEPA Member Agencies (up to 30) who had indicated an interest in participating and sending them Part E Signature Forms with the contract for each state to complete. Each AEPA Member Agency will review, evaluate, and determine which, if any, it will award contracts to. The approved Vendor Partner and the AEPA Member Agency will hold final contract negotiations, if necessary, to work out state-specific details of contract implementation including:

1. Acquiring additional information and having discussions on how the awarded contract will be executed.
2. Signing the contract with the AEPA Member Agency.
3. Jointly develop marketing strategies and a plan for contract roll-out activities to the AEPA Member Agency's Participating Entities (Advertising, flyers, website access, etc.).
4. Establish how orders will be processed, handled, and reported.
5. Contract management: Establish how and by whom the day-to-day contract management will be handled and who will be the AEPA Member Agency's representative.

It is not guaranteed that each AEPA Member Agency will enter into a contract with AEPA approved Vendor Partners. The final decision as to the appropriateness of a contract for a Member Agency rests solely with that AEPA Member Agency.

II. Responsibilities of A Vendor Partner

A. As an approved AEPA Vendor Partner, the following is expected in support of the contract:
   1. Designate and assign a dedicated senior-level contract manager (one authorized to make decisions) to each of the Member Agency accounts. This employee will have a complete copy and must have a working knowledge of the contract.
   2. Train and educate sales staff on what the AEPA cooperative contract promised, including pricing, who can order from the contract (by state), terms/conditions of the contract, and the respective ordering procedures for each state. It is expected that Vendor Partners will lead with AEPA contracts.
   3. Develop a marketing plan to support the AEPA contract in collaboration with respective AEPA Member Agencies. The plan should include, but not be limited to, a website presence, electronic mailings, sales flyers, brochures, mailings, catalogs, etc.
   4. Create an AEPA-specific sell sheet with a space to add a Member Agency logo and contact information for use by the Member Agencies and the Vendor Partner's local sales representatives to market within each state.
   5. Quarterly, complete the sales and administrative fee report (see attached PDF example) and submit to each Member Agency along with the respective administrative fees to be paid. If there are no sales, a $0 report is required.
   6. Report sales and administrative fees by participating state if requested by AEPA.
   7. Have ongoing communication with the Category Committee Chairperson, AEPA Member Agencies, and the Member Agencies Participating Entities.
   8. Annually attend two (2) AEPA meetings: Annual meeting which is typically in April or May and the Winter Meeting which is typically the week after Thanksgiving and has historically been held in conjunction with the Association of Educational Service Agencies (AESA) annual conference. At the Annual Meeting, Vendor Partners participate in a round table meeting with each of the AEPA Member Agencies. Vendor Partners that have paid the registration fees can participate in the meetings.

9. Trade show support: Strongly encourage participation in national and local conference trade shows to promote the AEPA contracts such as, but not limited to, the Association of School Business Officials (ASBO), the National Institute of Governmental Purchasing (NIGP), and the National Association of Educational Procurement (NAEP).
10. Increasing sales over the term of the contract with all participating AEPA Member Agencies.

III. Responsibilities of AEPA Member Agencies

A. In support of the Vendor Partner and respective contract, each AEPA Member Agency should provide the following support:
   1. Designate a staff member(s) that will serve as a point person for the AEPA program within that state.
   2. Provide a staff member to work collaboratively with the Vendor Partner to determine the best marketing plan for the respective Member Agency state. Marketing efforts may include but not be limited to the education and use of sales force, a website presence, electronic mailings, brochures, mailings, etc.
   3. Develop marketing materials for the Member Agency to use that would include representation of the awarded contracts. Materials may include, but not be limited to, a website presence, electronic mailings, sales flyers, brochures, mailings, catalogs, etc. as determined by the respective Member Agency and what works best within their state.
   4. Assist the Vendor Partner to jointly market the contract to potential Participating Entities within the state.
   5. Work with the Vendor Partner to identify eligible Participating Entities within the state which may include providing a list of potential customers.
   6. Work with the Vendor Partner to identify and help manage costs associated with fulfilling this contract.
   7. Attendance at the two (2) AEPA meetings which provides for an opportunity to interact with Vendor Partners.

IV. Category Specifications

1. Scope of Bid

AEPA is seeking nationally recognized, highly qualified, experienced contractor(s) who possess the necessary resources and capabilities to acquire, deliver and perform the required supplies, materials equipment and labor to all participating member states (up to 30) necessary to:

a. Respond to requests from a number of different types of educational, governmental and public institutions seeking roofing and building envelope solutions.
b. These items will include but are not limited to: Providing solutions and performing the work following the specifications outlined with this IFB.
c. Types of services may include, but are not limited to:

1.1 Consult and work with individual AEPA Member Agency's educational institutions and other public entities (owners) to assess and evaluate their existing facilities envelope systems' current functional and operational conditions based on the most recent adopted federal, state and industry standards and specifications. Based on the assessment and evaluation results, assist the owner in determining the required action(s) needed and develop a complete and comprehensive program to maintain, repair, restore and/or replace those roofing systems and facility envelopes to a good and sound operational condition.

1.1.2 Assist and work with individual owners on an ongoing basis to design, develop or update existing short-term and long-term facility construction and maintenance plans to allow them

to properly manage their facility assets. To implement a comprehensive construction and maintenance program to maintain existing facilities, replace those systems that are no longer maintainable and to suggest energy-efficient, well-performing and cost-effective products and systems for new facility construction.

1.1.3 Provide and make available the necessary resources, products, and services necessary for the owner to establish and conduct a roofing and/or facility envelope project that addresses the four (4) basic ingredients of an energy-efficient, high-quality, cost-effective and functional facility envelop system.

1.1.3.1 Due diligence in assessing and developing the available options with associated costs required to bring and maintain an existing facility's envelope into good condition.

1.1.3.2 Careful planning and selecting of a replacement system when required to ensure that it is the most energy-efficient and cost-effective system that will meet or exceed the requirements of the project.

1.1.3.3 When applicable, investigate and take into consideration new technologies, existing products and materials that will add to and improve energy efficiency and decrease absorption of solar energy and the deterioration due to climatic conditions of the area.

1.1.3.4 Make available the necessary resources required to allow owners to conduct and perform ongoing inspections, have warranty work done and perform regular preventative maintenance to ensure proper care of the facility's building envelope through its stated life cycle.

1.1.3.5 When applicable provide masonry repair and/or solutions performed by the offeror or a qualified trained subcontractor in accordance with unit pricing offered.

1.1.4 Acquire the supplies, materials and services required to prepare the individual project site, to install a new building envelope, to maintain and repair an existing building envelope and tear off, remove, and install a new building envelope.

1.1.4.1 Scan existing roofs using the latest technology to determine the amount and location of wet or substandard roofing components to be removed.

1.1.5 The owners found that within the 30 AEPA states, maintenance, operations and construction departments possess different levels of resources and capabilities to deal with facility envelope projects. AEPA is seeking Offerors who have and can make available a variety of options relating to:

1.1.5.1 Offering several different high-quality and cost-effective manufacturers' products, materials, and complete systems to meet facility and climatic conditions that exist within the 30 AEPA states.

1.1.5.2 Offering a turn-key (single source) solution that includes, but is not limited to, providing all necessary design and engineering work; obtaining and delivering the required supplies, materials and equipment; and performing all of the services to prepare the site, install and complete the project's scope of work and deliver a finished product that meets or exceeds federal, state and industry standards while meeting the project's requirements.

1.1.5.3 Offering those owners who possess the necessary resources and capacity to perform their own project the needed supplies, materials, equipment, technical support and assistance to properly

install and complete the project; inspect and certify that the installed solution meets or exceeds industry standards and manufacturer's specifications and have a manufacturer's warranty issued for the completed project.

1.1.5.4 Offering a complete and comprehensive ongoing maintenance and repair program that ensures the owner that timely and regular inspections are done; and when required, warranty and/or repairs are completed to keep and maintain the facility's building envelope in good condition throughout its lifecycle. Said maintenance contract is not required to maintain the project warranty. A maintenance contract may be included as part of a bid but can in no way affect the warranty provisions of a contract. The maintenance contract must be with an entity which is certified to do warranty work on the roof system that is installed.

1.1.5.5 Offering and providing the owner's staff with the training, technical support, maintenance instructions, supplies and equipment for them to properly maintain and protect their investment throughout its lifecycle.

1.1.5.6 Offering any variation of the above noted options that will allow the owner to meet its various facility building envelope needs as they arise during the term of this contract.

1.2 The Offeror should note that AEPA Member Agencies prefer providers/contractors that can provide and perform the scope of work as indicated in items 1.1 above as a turn-key solution. However, it is also recognized that there are providers/contractors that specialize in only providing and installing one specific roofing system or protective coating identified herein. Responses can be made for any of the major roofing and/or protective coating systems requested herein, as long as the provider possesses the resources, ability and capacity to provide all necessary labor, supplies, materials, equipment and support services required to assess and evaluate current site conditions; design a solution, obtain and/or manufacture solution, deliver and install the solution; provide a manufacturer's warranty covering the solution installed; and provide ongoing maintenance and repair and support services as needed. Under the terms of this solicitation, AEPA reserves the right to accept or reject Offeror's responses that do not offer a comprehensive turn-key solution for the complete scope of work indicated above.

1.3 Participating Entity shall have the right to reject the participation of any personnel of Contractor in the performance of the services if, in relation to the work assigned to them, the Participating Entity deems such personnel to lack the skill, experience and expertise required to perform the services or if Participating Entity considers their performance to be substandard or otherwise detrimental to the proper completion of the services. The contractor will advise Participating Entity promptly of any change in the project manager or other key personnel assigned to the performance of the services.

1.4 Contractor acknowledges that the safety of the Participating Entity's students, employees, officials, and guests is of the utmost importance. Contractor will endeavor to ensure that its officers, employees, agents, representatives, and consultants will take no action that would jeopardize the safety of the Participating Entity's students, employees, officials, or guests. The Participating Entity reserves the right to require Contractor's officers, employees, agents, representatives and consultants to wear identification and always stay in designated work areas while on the Participating Entity's property. The Participating Entity shall have the right to effect the immediate removal of any person associated in any way with Contractor from Participating Entity's property for failure to wear identification, for being outside a designated work area, for fraternizing with or engaging in any improper behavior directed toward or in the vicinity of students, employees, officials, or guests of the Participating Entity or for any other good cause.

1.5 Contractor shall perform or cause to be performed with the appropriate state or federal criminal investigation entity a criminal background check of any personnel that will be performing the services within the proximity of minors. Contractor shall notify the Participating Entity of any proposed employee who has been convicted, pled guilty or pled "no contest" to a criminal offense, and the Participating Entity reserves the right to reject the proposed employee with a criminal background.

2. Type of Bid

AEPA requests Bidders to submit primary pricing in the form of either "catalog pricing," or "line-item pricing." This category is constructed in the form checked below. An explanation of each can be found in the table below. Additional information on permissible pricing strategies can be found in Part B – General Terms and Conditions under "Pricing."

This bid is considered a:

YES	NO	TYPE OF BID
		CATALOG: A catalog bid is utilized when the products and/or services solicited are clearly identified with set and specific characteristics, attributes and configurations that are identifiable as a stand-alone single unit and can be listed and priced as a single unit with options that can be added to enhance and/or improve its operation and functionality. The Bidder offers a fixed discount(s) off retail price or prices in a Commercially Available Catalog. The discounts may be for the entire Commercially Available Catalog, for specific products, product lines, manufacturers or category of products as determined by the Bidder. See Pricing section for detailed information on Catalog Pricing.
X		**LINE ITEM:** A line-item bid is utilized when the products and services solicited cannot be identified or listed as a single unit; consists of a number of different variables and configurations, it is necessary to identify the specific project or application; the end product or solution is made of individually priced elements or components and the end product's or solution's cost is derived by the Vendor Partner specially prepared and providing a quote based on the project's terms, conditions and requirements. See Pricing section for detailed information on Line-Item Pricing.

3. Anticipated AEPA Member Agency Participation

State	Participate?	Other States Member Sells In
California	Yes	AZ, NV
Colorado	Yes	
Connecticut	Yes	ME, NH, NY, RI, VT
Florida	Yes	AL
Georgia	Yes	
Illinois	No	
Indiana	No	
Iowa	Yes	
Kansas	Yes	OK
Kentucky	Yes	AL, LA, MS, NC, TN
Massachusetts	No	
Michigan	Yes	
Minnesota	Yes	SD
Missouri	Yes	AR, LA, SD
Montana	Yes	ID
Nebraska	Yes	
New Jersey	Undecided	
New Mexico	Yes	

North Carolina	Yes	
North Dakota	Yes	
Ohio	Yes	
Oregon	Yes	
Pennsylvania	Yes	DE, MD, NY
South Carolina	Yes	NC
Texas	Yes	
Virginia	Undecided	
Washington	Yes	AK, ID
West Virginia	Yes	
Wisconsin	Yes	
Wyoming	Yes	SD,UT

Please note that individual AEPA Member Agencies that have indicated that they intend to participate in any contract approved under this solicitation, does not guarantee or mean that the individual AEPA Member Agency will enter into a contract with any AEPA approved Vendor Partner. Each AEPA Member Agency will make that determination after reviewing Vendor Partner responses and AEPA's recommendation for acceptance and bid award. The AEPA Member Agency's contracting decision shall be final.

4. Anticipated Volume

Roofing & Building Envelope Services is a currently held category for AEPA. The resulting bid will be an Indefinite Delivery, Indefinite Quantity (IDIQ) contract(s). Sales for the 2023 year through the AEPA contract exceeded $248,000,000.00. AEPA Member Agencies estimate a considerable amount of activity in sales in the first contract term. AEPA Member Agencies anticipate that purchase volumes will increase over the course of contract years two (2) through four (4). This information is provided as an aid to Bidders in preparing responses only. It is not to be considered a guarantee of volume under this IFB. The successful Vendor Partner's discount and pricing schedule shall apply regardless of the volume of business under the contract.

5. Voluntary Pre-Bid Conference Call

AEPA will host a voluntary pre-bid conference call, for any interested Bidders or potential Bidders. The conference call times are set in the following schedule for each of the four contiguous United States time zones. No pre-registration will be required. Recording of the conference call will be posted on the AEPA Website.

Voluntary Pre-Solicitation Conference Call Schedule (All IFB Categories)

Solicitations	Date	Eastern	Central	Mountain	Pacific
AEPA 025 Voluntary Pre-Bid Conference Call - All IFB Categories	Mon Aug 19 2024	12:00 PM	11:00 AM	10:00 AM	9:00 AM

Conference Call Meeting Link:
https://us02web.zoom.us/j/88621697023?pwd=AGHgswRvMyp8CAwWcckRO6xwhUs7fo.1

Meeting ID: 886 2169 7023
Passcode: TJTB5A

Dial In Information
- +1 929 436 2866 US (New York)
- +1 301 715 8592 US (Washington DC)

Meeting ID: 886 2169 7023

Passcode: 831780

6. **Glossary of Terms and Abbreviations.** Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in specifications or other contract documents, they shall mean the recognized name of the organizations responsible for the standards and regulations in the following list. Names, telephone numbers, and websites are subject to change and are believed to be accurate and up-to-date as of the date of the contract documents.

   AA: Aluminum Association, Inc. (The) (703) 358-2960 www.aluminum.org

   AAMA: American Architectural Manufacturers Association (847) 303-5664 www.aamanet.org

   ACI: American Concrete Institute (248) 848-3700 www.aci-int.org

   AEPA Member Agency: A state cooperative purchasing lead agency recognized by AEPA to represent a specified state in contracting activities associated with this solicitation

   AEPA Participating Entity (Client/Facility Owner): A public educational institution or other qualifying agency authorized to use the contracts of an AEPA Member Agency

   AGCA: Associated General Contractors of America (The) (703) 548-3118 www.agc.org

   AI: Asphalt Institute (859)822-4960 www.asphaltinstitute.org

   AIA: American Institute of Architects (The) (800) 242-3837 www.aia.org

   ANSI: American National Standards Institute (202) 293-8020 www.ansi.org

   API: American Petroleum Institute (202) 682-8000 www.api.org

   Approved: Defined as conveying authorization or action on the Contractor's submittals, applications, and/or Requests. The owner shall identify and establish within the contract documents who its designated representative is and the parameters of the individual's duties, responsibilities, and authority.

   Architectural Barriers Act: (ABA) (202) 272-0080: Accessibility Guidelines for Buildings and Facilities available from Access Board www.access-board.gov

   ARMA: Asphalt Roofing Manufacturers Association (202) 207-0917 www.asphaltroofing.org

   ASCE: American Society of Civil Engineers (800) 548-2723 www.asce.org

   ASTM: American Society for Testing and Materials International (610) 832-9585 www.astm.org

   AWCI: Association of the Wall and Ceiling Industry International (703) 534-8300 www.awci.org

   BIA: Brick Industry Association (The) (703) 620-0010 www.bia.org

   CIMA: Cellulose Insulation Manufacturers Association (888) 881-2462 www.cellulose.org

   CISCA: Ceilings and Interior Systems Construction Association (630) 584-1919 www.cisca.org

   Contracting AEPA Member Agency: An AEPA Member Agency that enters into a contract as a result of this solicitation

Contracting Participating Entity: Refer to AEPA Participating Entity (Client/Facility Owner)

Contractor: An awardee of any contract to the Prime Contractor, to do work for a Participating Entity.

Cost Proposal: Documents prepared based on the awarded Offeror's response to this solicitation, issued to a AEPA Participating Entity in response to a request to have the Contractor inspect, assess, obtain, deliver, install, renovate, replace, maintain and/or provide technical/support services relating to facilities' roofing system or envelope with all of the associated terms, conditions, specifications and costs. All pricing must be auditable.

CPSC: Consumer Product Safety Commission

CSI: Construction Specifications Institute (The) (800) 689-2900 www.csinet.org

CSPE: Chlorosulfonated Polyethylene, also known as Hypalon

Drawings and Specifications: Architect/engineer and/or other qualified persons blueprints/project drawings and project manuals laying out, describing, and specifying the project's scope of work and performance standards and requirements.

EJMA: Expansion Joint Manufacturers Association, Inc. (914) 332-0040 www.ejma.org

EPA: Environmental Protection Agency (800) 887-6063 www.epa.gov

Federal Regulations and Codes – Title 40: National emission standards for hazardous materials and asbestos abatement projects, worker protection, asbestos-containing materials in schools.

Federal Requirements: Contractor agrees, when working on any federally assisted projects with more than Twenty Thousand Dollars ($20,000) in labor costs, to comply with the Contract Work Hours and Safety Standards Act, the Davis-Bacon Act (Section 29, CFR Part 5), the Copeland "Anti- Kickback" Act, and the Equal Opportunity Employment requirements of Executive Order 11375. In such projects, the Contractor agrees to post wage rates at the work site and comply with all reporting requirements. The Contractor shall provide AEPA with a copy of any required report filed. In addition, to comply with the Copeland Act, the contractor must keep records for three (3) years and allow the federal grantor agency access to these records upon demand. All federally assisted contracts to AEPA Members that exceed Ten Thousand Dollars ($10,000) may be terminated by the federal grantee for non-compliance by the Contractor. In projects that are not federally funded, Offeror must agree to meet any federal, state, or local requirements, as necessary. In addition, if compliance with the federal regulations increases the contract costs beyond the agreed upon costs in this solicitation, the additional costs may only apply to the portion of the work paid by the federal grantee. On all other projects, the prices must agree with this contract.

FRSA: Florida Roofing, Sheet Metal and Air Conditioning Contractors Association, Inc. (407) 671-3772 www.floridaroof.com

FSA: Fluid Sealing Association (610) 971-4850 www.fluidsealing.com

Furnish: Supply and deliver to project site, ready for unloading, unpacking, assembly, installation, and similar operations.

GA: Gypsum Association (202) 289-5440 www.gypsum.org

GS: Green Seal (202) 872-6400 www.greenseal.org

GSI: Geosynthetic Institute (formerly GRI) (610) 522-8440 www.geosynthetic-institute.org

HEPA: High-efficiency particulate air

HPVA: Hardwood, Plywood and Veneer Association (703) 435-2900 www.hpva.org

HVAC System: Heating, ventilation, and air conditioning

ICRI: International Concrete Repair Institute, Inc. (847) 827-0830 www.icri.org

Individual Project Contract Documents: Should consist of the construction contract, conditions of the contract, drawings (if required) and specifications defining the scope of work, product specifications, delivery timelines, proposal pricing per the contract documents, etc. These should be issued prior to signing the construction contract and/or prior to issuing a purchase order.

Install: Operations at project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, and protecting, cleaning, and similar operations.

International Conference of Building Officials Uniform Building Code: A set of guidelines, standards and best practices relating to the various trades involved in building construction.

ISO: International Organization for Standardization www.iso.ch Available from ANSI (202) 293-8020 www.ansi.org

ISO 9000/9001: International Standards Organization Quality Standards

Manufacturer's Representative: Dealers, distributors or installers submitting a response to this solicitation for products requested herein or as a manufacturer's representative must include with their response documented evidence from and between them and the product's/system's manufacturer certifying that the Offeror is a bona fide manufacturer's agent for the specific products and services proposed; the Offeror is qualified and experienced to assess existing conditions, develop and submit manufacturer acceptable solutions for the product lines offered; the product/system manufacturer will agree and commit to support, review and issue their guarantee on the work performed and products provided; and the Offeror has a good track record with their product. Should the Offeror fail to satisfactorily fulfill any obligations established as a result of completing a project using their products/systems under contract as a result of this solicitation, the manufacturer will either assume and discharge such obligations or provide for their competent assumption by one or more bona fide representatives for the balance of the obligations.

Material Costs: Costs for materials, including taxes, delivery, handling, storage, and waste.

MHIA: Material Handling Industry of America (800) 345-1815 www.mhia.org

MTVR: Moisture Vapor Transmission Rate

NAAMM: National Association of Architectural Metal Manufacturers (312) 332-0405 www.naamm.org

NACE: National Association of Corrosion Engineers International) (281) 228-6200 www.nace.org

NAIMA: North American Insulation Manufacturers Association (703) 684-0084,

NBFU: National Board of Fire Underwriters

NCMA: National Concrete Masonry Association (703) 713-1900 w ww.ncma.org\

NRCA: National Roofing Contractors Association (800) 323-9545 www.nrca.net

NFPA: National Fire Protection Association (800) 344-3555

NLGA: National Lumber Grades Authority (604) 524-2393

NSSGA: National Stone, Sand & Gravel Association (800) 342-1415 www.nsf.org

NTRMA: National Tile Roofing Manufacturers Association (Now TRI)

Offeror's Price List: For the purpose of this solicitation, the Offeror's price lists shall consist of the cost evaluation submittal form and the manufacturer's/distributor's published price lists that clearly state and identify all products and services offered with the Offeror's discount to be applied to each to determine the AEPA price, and, because the scope of works covered by this solicitation may require site preparation or other non-roofing construction related products and services to be provided as part of completing the proposed project, the AEPA Members have selected "R.S. Means," a nationally accepted costing method, to be used to determine the cost of those items not covered by the established published price list and/or the alternative method of costing.

Owner's Representative: An individual identified by the client/owner as contact person for the individual project. The owner's representative has authority to make decisions and to authorize any actions as defined for the project.

PDI: Plumbing & Drainage Institute (800) 589-8956 www.pdionline.org Offeror/Contractor: Individual or entity submitting a response to this solicitation and awarded a contract to provide goods and services to AEPA Members and their clients based on the specifications and requirements of this solicitation.

Performance Specification: Specifies the subsequent performance of completed construction work rather than prescribing how the work shall be constructed and installed.

Vendor Partner (Contractor): Any firm, business and/or individual(s) who submits a response to this IFB and is awarded a contract. The Contractor will be considered a prime contractor to AEPA, and AEPA will not enter into any agreements with a subcontractor. Any Contractor paid directly by AEPA Participating Entity is a prime contractor. Any subcontractor performing under this IFB is contracted and paid by the prime contractor. Prime contractors using subcontractors must be willing, able, and capable of obtaining, supervising and being responsible for any subcontractors required to perform and/or provide products and services offered herein.

Project Site: Space available for performing construction activities. The extent of the project site is shown on drawings and may or may not be identical with the description of the land on which project is to be completed.

Qualifications: Includes any and all skills, knowledge, capacities, capabilities, experience, financial stability, available human and physical resources, historical background, past and present performance, properly licensed to perform and provide products within the 30 AEPA member states, and the proposed products/services meet or exceed specifications specified herein and proposed pricing complies with state and local requirements. The evaluation of a respondent's qualifications shall be done in accordance with the criteria set forth herein, and the most recent edition of any relevant regulation, standard,

document, or code that shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirement shall be utilized.

Regulations: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the work.
SDI: Steel Deck Institute (847) 458-4647 www.sdi.org

Shop Drawings: Drawings made for production purposes by persons other than a designer. SMACNA: Sheet Metal and Air Conditioning Contractors National Association

Specifications: Written descriptions of work, materials, or equipment that complements the construction drawings.

SPFA: Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) (800) 523-6154 www.sprayfoam.org SPRI: Single Ply Roofing Industry (781) 647-7026 www.spri.org

State Wage Rates: Some of the AEPA member's states have and require the Contractors pay prevailing wage rates as required by their respective state labor statutes. It is the Offeror's responsibility to be acquainted with those state's Department of Labor rules, regulations, procedures and requirements relating to state wage rates, and to comply with state and federal regulations regarding payment of wages on public projects. The prime contractor and any subcontractors shall pay all tradesmen and laborers employed on the site of the project, unconditionally and not less often than once a week, and without subsequent unlawful deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the advertised specifications.

Subassembly: A prefabricated ceiling, roof, roofing system or similar combination of roofing components.

SWA: Structural Welding Code

SWRI: Sealant, Waterproofing, & Restoration Institute (816) 472-7974 www.swrionline.org

TRI: Tile Roofing Institute (Formerly: RTI - Roof Tile Institute) (312) 670-4177 www.tileroofing.org

UBC: Uniform Building Codes

UL: Underwriters Laboratories Inc. (877) 854-3577 www.ul.com

Unit Cost: An average cost per unit calculated by dividing total costs of the item by the measured quantity of units. Unit costs may include material costs, labor costs, plant and equipment costs, overhead costs, job and operating costs and profit. The content of the unit costs must be made clear. An item may have separate unit costs for materials and labor.

Unit Price: Similar to a unit cost, but usually consisting of all direct costs and some or all indirect costs.

USGBC: U.S. Green Building Council (202) 828-7422 www.usgbc.org

Value Engineering: Comparison and economic evaluation of alternate construction methods for a given project.

Waste Construction Material: That is extra to the actual net quantity required by the work, but that is nevertheless required by or used in performing the work or is somehow lost as a result of doing the work, and therefore contributes to the material cost.

7. Special Terms and Conditions

BID BOND: A bid bond is required to be submitted in the amount of $25,000.00. It will be returned within 10 days of the award to vendors not receiving the award. See I. D. above for instructions on how to supply a Bid Bond.

7.1 By responding to this solicitation, the Offeror agrees to and will be solely responsible for doing the research to ascertain that its solutions offered and provided meet or exceed all federal, state, local and industry regulations, rules, standards and/or requirements.

7.2 Applicability of industry standards: unless the individual project contract documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the project's contract documents to the extent referenced. Such standards are made a part of this bid by reference provided under the definitions above.

7.2.1 Publication Dates: Comply with standards in effect as of date of the individual project's contract documents unless otherwise indicated.

7.2.2 The Contractor and any subcontractors engaged in a construction project covered by this bid must be familiar with industry standards applicable to the construction activity being performed. Copies of applicable standards are not provided as part of this solicitation and, when copies of standards are needed to perform a required construction activity, they may be directly obtained from the governing agency, organization or publication source as identified herein.

7.3 Where abbreviations and acronyms for standards and regulations are used in this bid or within individual project's specifications or other contract documents, they shall indicate the recognized name of the organizations/agencies responsible for the standards and regulations and the full names, telephone numbers and websites.

7.4 The successful Offeror must abide by and ensure that any subcontractor abides by all applicable federal, state, and local laws, codes, and ordinances governing any area(s) in which any products and/or services covered by this solicitation are rendered and must have all required permits, licenses, agreements, tariffs, bonding and insurance required by same. No claims for additional payment will be approved for changes required to comply with any such requirements once a project contract is executed.

7.5 The successful Offeror must provide AEPA Members and their clients the benefit of all general price reductions extended to its other customers at any time during the original term of this contract or any extension thereof. Likewise, the Contractor may during the annual contract renewal process, submit to AEPA any additional products, technologies or services that may become available, fall under, and are covered by this solicitation's scope of work and relate to the contracted award. The R.S. Means costs shall be adjusted when the new updates (adjusted on a quarterly basis) become available, or R.S. Means issues an update based on current market conditions. See below section 13. Pricing a. ii. through iv. AEPA will allow the Contractor to request a price adjustment only if it can be demonstrated and documented that on a national basis the natural resources (raw materials) utilized or labor market have experienced a significant cost increase since the contract was awarded or the last contract renewal was approved. Such events will be industry wide and cause all related product prices to be affected.

All price adjustment requests must be in writing and submitted to the oversight committee chairman who has been designated by AEPA for that solicitation/category. The oversight committee will perform the due diligence required, make a recommendation, and submit it to the AEPA board of directors for their approval/disapproval. If approved, the Contractor will provide each AEPA Member Agency with revised price lists with which they will assist the Contractor in notifying its clients. In the event of a decrease in the prevailing contract price, the oversight committee may approve the change and it will become effective immediately upon notification.

7.6 If the Offeror intends to utilize independent agents/distributors, subcontractors and/or third-party agents to perform and/or provide any part of the products and services offered herein, the Offeror must ensure that prices from these parties are in accordance with the terms, conditions and pricing schedules submitted and approved by AEPA. Installers should have at least (10) ten years of experience. Installation of the roofing systems should be by an installer that is trained and certified by the roofing manufacturer for the type of system and the warranty required.

7.7 If additional and optional products and services are proposed, they must be clearly identified and must include detailed descriptions, and specifications with their associated costs.

7.8 New products and services must only be offered and made available under this solicitation when they have been extensively tested and proven to be reliable, commercially available and suitable and appropriate for use on, within, and around educational facilities and other public facilities.

7.9 The Offeror must have the resources necessary to offer and deliver suitable and comprehensive training and maintenance support programs to assist and allow AEPA Members' clients within the 30 AEPA states to properly and successfully inspect, monitor, maintain and manage their roofing and/or envelope systems throughout its stated life cycle. The programs offered must be appropriate for the client's staff that will be responsible for overseeing work being performed and monitoring the roofing and envelope systems' conditions on an ongoing basis. The Offeror must provide documentation that proves these resources and programs do exist and have been successfully delivered on a national basis. If there are associated costs, terms, and conditions and stipulations relating to these programs offered, they must be clearly identified and stated within the Offeror's response.

7.10 In its' response, the Offeror must demonstrate and present information to communicate its ability to adhere to, utilize and ensure the following:

7.10.1 For any state who is awarded a contract related to this IFB, the Contractor must hold and maintain a current and valid contractor's/trade license(s), as required, that allows the Contractor to supervise others, to construct, alter, repair, add to, subtract from, improve, move, wreck, or demolish any roofing/building envelope system and/or related structures covered by this solicitation and found within those states that have such requirements.

7.10.2 The Contractor will ensure that all individuals, firms or subcontractors being used to perform or supervise work performed and materials and equipment installed under this contract are highly qualified, experienced and hold all current contractor's/trade license(s), as may be required by those individual AEPA states. All subcontractors to be used for each individual project performed under this contract must be clearly identified and a list submitted with the name, address, trade or type of work, contractor's/trade license number, if applicable, and their federal ID number.

7.10.3 Upon request by an AEPA Participating Entity, the Contractor shall schedule a meeting with the owner to ascertain and develop a comprehensive and complete understanding of the scope of work being requested by the owner. The Contractor shall conduct and perform a site

investigation to learn existing site conditions in order to provide additional products and/or services necessary to properly complete the project in accordance with the project's contract documents.

7.10.4 Any contract awarded as a result of this IFB between an individual owner and the Contractor shall include of a detailed scope of work (a description of the work to be performed and the products to be provided by the Contractor) and will include all specifications, drawings, Contractor's cost proposal and other project related documents. All applicable industry standards, manufacturer's instructions and requirements, technical specifications and general conditions, federal, state and local codes around which the contract is made shall be included, as if they were physically part of the contract documents.

7.10.5 A schedule for performance of work that can be met without planned overtime is the responsibility of the Contractor, unless otherwise requested by the owner.

7.10.6 Terms for what constitutes project completion and acceptance by the owner and taking title to work finished must be clearly identified, described, and agreed upon and made a part of any contract. If any part of the construction requires the owner to assume control before the completion, this needs to be defined with all the agreed-to terms, conditions, and stipulations. Both parties must agree on the definition of what constitutes total acceptance of the project, and it must be accomplished before final payment is made to the Contractor. Upon completion of the project, the worksite will be left in a condition equal to or better than before the project.

7.10.7 Upon completion of work related to any contract awarded as a result of this solicitation, the Contractor will present the owner with all documents necessary to close out the project, including, but not limited to, instructions/procedures on conducting regular inspections and performing preventative maintenance, complete sets of "as built" project drawings if applicable, and executed manufacturer's warranty documents for the roofing or envelope coating system installed.

7.10.8 Up to and beyond the normal manufacturer's warranty, the prime contractor must warrant the work performed, and materials and related fixtures involved with the installation for a period of not less than two (2) years from date of acceptance against defects and poor workmanship. Even if final payment is made, if the owner discovers an unfinished and/or improperly installed component, defect or poor workmanship that should have been identified and noted during the final inspection, the Contractor will complete the work in a timely fashion at no additional cost to the owner.

7.10.9 The Contractor/manufacturer may offer extended warranties or maintenance agreements at an additional cost to the owners. The maintenance contract must be offered as a separate line item.

7.10.10 The Offeror must provide written response specifications. By responding to the "Indefinite Quantity Unit Price Schedule", you are agreeing to the specifications as written for each item to which you provide a price. If the specification asks for some supporting document, describe where it can be found in your submission. If you meet the specification in an alternative fashion, describe how your solution is equal or better. If a procedure is involved, write "agreed" or describe the procedure you will follow that will result in the ability to accomplish the work in an equal or superior fashion. You must respond to all items, either by pricing or by reference. If you will not or are not able to accomplish a given specification, indicate a NO BID for that specification. Only items priced can be invoiced to an agency member.

7.11 If the Offeror submitting a response to this solicitation to provide roofing systems, envelope protective coatings and other related products and services is not a manufacturer, then the

Offeror must provide written documentation between it and the manufacturer indicating that the product manufacturer(s), for the purpose of this solicitation, is aware of the Offeror's intent to offer the manufacturer's product line(s) and both parties are jointly committed to and are aware of the terms, conditions and stipulations in this IFB. The manufacturer acknowledges and agrees to and will stand behind the Offeror's/Contractor's performance under this IFB. The failure of nonmanufacturers to submit enough documentation to meet this requirement can result in a non-responsive bid.

7.12 Retainage and progress payments: NOTE: Different AEPA states have their own statutes, rules and/or regulations that govern the way in which retainage and progress payments are handled and, therefore, the prime contractor must make themselves aware of and comply with all such rules, regulations and laws. If such laws are not in place that differ from these below, those rules and statutes will be read as if included.

7.12.1 Ten percent (10%) of all contract payments shall be retained by the project's owner as insurance of proper performance of the prime contractor. Prime contractor agrees to identify the amount to be retained on project invoices for each progress payment.

7.12.2 When fifty percent (50%) of the work for any contract related to this solicitation is completed, one half of the amount retained shall be paid to the prime contractor if the prime contractor requests payment and if the owner is satisfied with the progress of the work.

7.12.3 After the work is fifty percent (50%) completed, no more than five percent (5%) of the amount of any subsequent progress payment shall be retained, unless the owner of the project makes a written determination indicating and justifying satisfactory progress has not being made, at which point the ten percent (10%) retention shall be reinstated.

7.12.4 If the project owner and the prime contractor agree to a substitute security, the agreement must be in full compliance with state law. If a substitute security is agreed to, the prime contractor must provide the owner with a signed and acknowledged waiver of any right or power of the obligor to set off any claim against AEPA, the member, or the prime contractor in relationship to the security assigned.

7.13 Progress payments may be made by the client/owner to the prime contractor based on a duly certified and approved estimate of work performed during the preceding agreed to period. The prime contractor must agree to pay any subcontractors or material suppliers within seven (7) days of their receipt of the progress payment, unless otherwise agreed on in writing between the parties. The prime contractor agrees to follow all the relevant rules for progress payments; any interest due a subcontractor or material supplier will be paid by the prime contractor as authorized by law. A prime contractor may elect to invoice the entire work upon completion and pay subcontractors in a timely fashion as agreed between the subcontractors and the prime contractor.

7.13.1 The prime contractor, as part of its project's cost proposal, will provide a detailed schedule of values that breaks out by line item the products being provided and the services being performed with their associated costs.

7.13.2 Based on the project's timetable for completion, the prime contractor and project's owner will agree upon a schedule of progress payments based on identifiable milestones.

7.14 Performance Bonding requirements: Each of the AEPA member states have their own bonding requirements. Bonding should be in an amount equal to one hundred (100) percent of the price specified in the contract above the threshold or as required by law and at the discretion of the

AEPA Member Agency or Participating Entity. It is the Offeror's responsibility to be acquainted with each state's rules, regulations, procedures and requirements relating to payment and performance bonds, and to comply with each state's requirements.

7.15 Contract Between AEPA Participating Entity and the Offeror: In any contract between the Offeror and an AEPA Participating Entity for roofing and protective coating products, systems and/or services covered by this solicitation, the Order of Precedence in Part B will apply. A contract between the Offeror and the Participating Entity for any construction services shall contain all elements of an industry standard agreement. If applicable, the following items may need to be addressed:

a. Work to be performed by the Participating Entity must be clearly described and the Offeror's standards and criteria for acceptance stated.

b. The condition of the site prior to start of work by the Offeror will be established and agreed upon prior to contract execution.

c. The party responsible for obtaining, providing, and paying for temporary utility services, such as power, water, and other related items, must be identified and agreed upon by all parties prior to contract execution.

d. The space and/or facilities directly under, above, in, near or involved as part of the client's/owner's project that may be impacted by the work. The contractor, prior to the start of any work, shall communicate and advise the project owner's or other property owner's representative of any hazardous conditions, possible interruptions and/or interference with their associated implications that may occur during their day-to-day operations, and to allow the facility owner's/other property owner's representative to understand, address, voice any concerns, resolve any issues and provide written acknowledgement and approval of such conditions and/or interruptions as they may exist or occur.

e. Access to the construction space will be limited to the way agreed upon by the parties.

f. When loading, unloading, or operating equipment near an unprotected owner used area, the Contractor will keep an employee as a guard to prevent students and adults from entering.

g. Change orders are to be avoided, if possible since they often indicate poor planning.

h. A mutually agreed upon system for establishing, communicating, and approving changes must be identified and agreed to, including changes in scope and changes in compensation for the Contractor. Because of cost, safety and scheduling considerations, the ability to make field change orders will be permitted, and mutually agreed upon paperwork to document these changes, must be allowed. A change order that increases the contract amount in excess of Five Thousand Dollars ($5,000) or five percent (5%) of the contract amount, whichever is greater, must be approved, in writing, by the Participating Entity All change orders must be supported by a line item proposal or RS Means and must be furnished to the client prior to the execution of the work under the change order.

7.16 Contract Between Owner, Buyer, and Contractor: An AEPA Member Agency may require an agreement between the AEPA Participating Entity (Buyer) and the Contractor for the procurement of goods and services in the construction and professional services areas. Such

agreement shall be signed by all parties and is utilized to communicate each party's role, duties, and responsibilities and the terms, conditions, specifications and timelines which will govern the individual project, and ascertain that the project is being conducted and performed in accordance of this IFB.

8. General Requirements

8.1 All roof systems must meet the regulatory requirements of the Uniform Building Code, all applicable state, and local codes for public buildings, including, but not limited to, UL 790, Class A, and FM Class I, I-90 Fastening Standards. The prime contractor awarded a contract will comply with the latest, most stringent industry standard construction details published by the National Roofing Contractors Association's "The NRCA Roofing and Waterproofing Manual," All roof systems must meet the regulatory requirements of the Uniform Building Code, all applicable state and local codes for public buildings, including, but not limited to, UL 790, Class A, and FM Class I, I-90 Fastening Standards. The prime contractor awarded a contract will comply with the latest, most stringent industry-standard construction details published by the National Roofing Contractors Association's "The NRCA Roofing Manual: Metal Panel and SPF Roof Systems—2024; The NRCA Roofing Manual: Membrane Roof Systems—2023; The NRCA Roofing Manual: Architectural Metal Flashing and Condensation and Air Leakage Control—2022; and The NRCA Roofing Manual: Steep-slope Roof Systems—2021.The NRCA Waterproofing Manual. NRCA, 10255 W. Higgins road, Suite 600, Rosemont, IL 60018.Any deviations, such as the use of proprietary designs of the prime contractor or special construction for regional climatic conditions, must be identified in this solicitation and must be the prime contractor's best and most stringent assemblies. Except for roofs placed on temporary buildings, all designs related to this IFB shall be for systems with a life of 20 or more years. If the manufacturer will not warranty the design for 20 or more years, the design will not be placed on contract. The exception for this is a roof specifically designed for a 5-7-year period. The purpose for allowing a "Limited Facility Life Solution" is in the event a building is scheduled for demolition, repurposing, or sale. The Vendor must indicate and reference this as a short term, limited life roofing system in the line item. Also, the Vendor must specifically define the warranty period as a line item or condition of this type of roof application. The overall goal and intent of this IFB effort is to furnish and install and repair the full envelope of Roofing Related Services as indicated on the specific and individual customer project drawings and to include as described herein. The specifications herein are a general guide and minimum requirement to the scope of the type of projects desired by AEPA Member Agencies and their clients/owners. Individual specifications may require additional and expanded services and construction to meet individual needs. The awarded vendor must anticipate those expanded services and allow for those services and materials to be a part of the bid response. The intent of this bid is to award a contract to provide for the construction to meet the current and future needs of the clients/owners of AEPA Member Agencies. The contracted services are to meet or exceed all industry standards and requirements as defined, established, and set forth by accepted industry standards. The service and distribution area are to have the potential to serve the total geographic area of all 30 AEPA states as defined. Consideration will be given in the award based on the completion and degree of information provided regarding available services and advantages, as well as applicable parts of the Vendor Information and questionnaire. An opportunity to submit value added and expanded services as it applies to this IFB will be given positive consideration in the award selection. Consideration will be given regarding technological advances to provide services beyond today's standard methods. The opportunity to indicate value added dimensions and technological advancement will be available in Part F

8.2 Over time, research and development by roofing manufacturers and roofing consultants' feedback on the performance of the various roofing systems found within the public

marketplace have stated that over fifty percent of post-construction problems in buildings can be attributed to roofing systems. It is often said that a building is as good as its roof. The heat and assault of the sun in much of the United States doom many roofs to early failure; in northern states, snow and cold weather can be just as damaging. Thousands of years of construction history have not resulted in a perfect roof; weather and time seem to doom roofs and, therefore, AEPA is seeking high- performing and well-tested roofing systems (products and materials) that have a proven track record for withstanding the above-noted conditions that can doom a roofing system to early failure. Due to the above research and the past experience of AEPA Member Agencies and their Participating Entities in dealing with roofing systems, they have determined that it is critical and essential to any contracts approved and awarded by its members under this IFB that the roofing systems', products' and materials' manufacturer(s) be willing and able to acknowledge, commit to and support the design of; product and material manufacturing and delivery; installation; final inspection of the solution provided; issuance of warranties and the maintaining of the roofing system throughout its stated lifecycle. It is also a known fact that when the manufacturer has such involvement, it ensures and results in AEPA Member Agencies and their Participating Entities receiving the most cost-effective pricing of the products and services, and the quality control and accountability of the end product meeting and exceeding the expectations and the needs of the clients is greater. The manufacturer ensures that the local roofing contractor/installer is highly qualified, factory trained and certified and has a proven track record with the products, materials and systems being installed.

8.3 Except for roofs placed on temporary buildings, all designs in this IFB shall be for systems with a life of 20 or more years. If the manufacturer will not warranty the design for 20 or more years, the design will not be placed on contract. Since most Participating Entities have the right to issue its own bid for roofing repair or restoration, AEPA is only interested in providing quality systems with a documented life cycle cost benefit when compared to standard low-cost roofing systems acquired through the traditional public bidding process. Local manufacturer's/ Offeror's representatives, distributors and installers/subcontractors are encouraged to assist and support the Offeror's/Prime contractor's efforts to provide well-designed and high-quality solutions that will result in the very best roofing asset at competitive prices.

8.4 Due to the cooperative purchasing aspect of this solicitation and the potential number of individual roofing projects that may occur at one time within the various AEPA states, AEPA has also determined that it must ascertain and ensure that the prime contractor does possess and can demonstrate its qualifications, background, experience, past and current performance track record, available resources and capacity to execute and carry out contracts with those AEPA Member State Agencies and their clients who desire to engage them to provide roofing and protective coating systems to their clients. To accomplish this task, AEPA is requiring the Offeror responding to this solicitation to complete the Offeror's Qualifications Form and submit the necessary background information and documentation to substantiate their responses. Offerors who fail to provide the information required on the Contractor's Qualifications Form or has failed to perform/complete past projects or is in default of warranty work or have been found guilty of violating state and/or local construction/labor codes, as judged by previous clients or AEPA, AEPA reserves the right to consider or not consider the Offeror's response as being responsive based on its own investigation and findings.

8.5 **Asbestos Removal**

8.5.1 Some of the roofing projects covered by this solicitation may require asbestos abatement as part of the scope of work. The facility owner may acquire removal and disposal services directly from non-AEPA contractors or may request and require the AEPA prime contractor to

include these abatement services as part of their proposed solution. The Offeror/Contractor must be willing and able to meet and comply with this type of request.

8.5.1.1 On multi-employer worksites or worksites that have close proximity of property owners, the prime contractor shall inform other employers/owners of the nature of the work with asbestos and/or PACM (Presumed Asbestos Containing Material), of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees/individuals of such other employers/owners are not exposed to asbestos.

8.5.1.2 All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, a Permissible Exposure Limit (PEL).

8.5.1.3 The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed following EPA, OSHA, and state specific regulations.

8.5.1.4 All persons entering a regulated area where employees are required to wear respirators shall be supplied with a respirator. The prime contractor shall ensure that employees do not eat, drink, smoke, chew tobacco, candy, cough drops or gum, or apply cosmetics in the regulated area.

8.5.1.5 The prime contractor shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace.

8.5.1.6 The prime contractor shall conduct daily monitoring that is representative of the exposure of each Class I or II work, unless a negative exposure assessment has been made for the entire operation. Periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals enough to document the validity of the exposure prediction, shall be made.

8.5.1.7 The prime contractor shall use OSHA acceptable engineering controls and work practices in all operations for asbestos removal, regardless of the levels of exposure.

8.5.1.8 For removing roofing material containing ACM, the prime contractor shall ensure the material is removed in an intact state to the extent feasible. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards. Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

8.5.1.9 When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line.

8.5.1.10 Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. Any ACM that is not intact shall be lowered to the ground as soon as is practical, but in any event no later than the end of the work shift. While the material remains on the roof, it shall be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting. Intact ACM shall be lowered to the ground as soon as is practical, but in any event no later than the end of the work shift.

8.5.1.11 Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner to preclude the dispersion of dust. Roof level heating and ventilation air intake sources shall be isolated, or the ventilation system shall be shut down.

8.5.1.12 All asbestos-containing debris shall be removed from the work site and disposed of in a manner acceptable to all federal, state, and local regulatory requirements.

8.5.2 The Contractor will comply with all mandatory OSHA rules and regulations as listed and described in 29 CFR 1926.1101(Z).

8.5.3 The Contractor will ensure that all individual state and local permits are acquired and required documentation is prepared and submitted in a timely manner.

8.5.4 As part of the project's close-out documents, the Contractor will include the asbestos abatement final certification with the appropriate backup documentation.

8.6 The prime contractor must be especially committed to requiring all safety precautions be taken at every job site.

8.7 Quality Control Issues

8.7.1 For audit purposes, a copy of any contract(s)/agreement(s) between the Public agency and the prime contractor must be kept on file in the agency issuing the original P.O. It is the responsibility of the prime contractor to supply a signed copy of all contract(s)/ agreement(s) in a timely fashion.

8.7.2 During work, the AEPA Member Agency and/or its Participating Entity may secure samples according to ASTM D140-88 of materials being used from containers/cartons at the job site and submit them to an independent laboratory for comparison to specified material.

8.7.2.1 Should test results prove that a material is not functionally equal to specified material, the prime contractor shall pay for all testing, and roofing materials/components installed and found not to comply with the specifications shall be removed and replaced at no change to the facility owner/client.

8.7.2.2 Should test results prove that materials tested were functionally equal to specified material, the prime contractor shall be notified of the results and costs associated to do the testing shall be paid by the facility owner/client.

8.7.3 Upon completion of a roof renovation/replacement, the prime contractor shall have the manufacturer's representative/inspector perform and issue an inspection report indicating the solution has been installed in accordance with and meeting all the manufacturer's installation specifications and warranty requirements. Upon the roofing manufacturer acceptance of the job, they shall issue the mandatory two (2) year warranty and a twenty

(20) year manufacturer's warranty to the facility owner/client in accordance with the terms and conditions of this solicitation and the project's contract. Once the project's close process has been completed, final payment will be made. The prime contractor shall, during the first, second and seventh year of this warranty, conduct an inspection of the installed solution, prepare and submit a written report of the installed solution's current condition and any concerns, warranty work and/or preventative maintenance that must be completed in order to keep the solution in good condition.

8.8 **Special OSHA Requirements**

8.8.1 The Contractor will use a fall protection program as described by OSHA. A copy of the plan to be used will be included with the Offeror's response.

8.8.2 The awarded Contractor will provide for each worksite a site specific safety plan. The safety plan and documents are to be in compliance with 29 CFR 1926.502(k)(M)'s requirement that: "Employers engaged in leading edge work... who can demonstrate that it is infeasible or creates a greater hazard to use conventional fall protection systems must develop and follow a fall protection plan....The sample plan can be modified to be used for other work involving leading edge work." . .

8.8.3 The Contractor shall be responsible for the development of a fire protection program to be followed throughout all phases of the construction, and shall provide for firefighting equipment, as necessary. Access to all available firefighting equipment shall always be maintained and shall be conspicuously located. All firefighting equipment shall be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced.

8.8.4 All waste materials will be handled in compliance with OSHA 29 CFR 1926.252.

9. General Specifications

9.1 The Offeror/Contractor must provide all labor, materials, equipment and, if required, design services, project site inspection, preparation and services relating to obtaining, manufacturing, delivering and installing the various roofing and protective coating products, systems and services proposed in response to this solicitation. These services may be provided by the Offeror's own crews and staff or by subcontractors contracted and supervised by the Offeror. It should be noted that the level of the Offeror's involvement will depend on the individual project specifications and the owner's requirements.

9.2 The Contractor is responsible for ensuring that the proposed project's design and construction drawings and manual clearly indicate, identify and communicate the products, services and testing that must be provided to deal with existing site conditions, utilities lines, HVAC units and distribution systems, surrounding buildings and site access requirements.

9.3 The Contractor is responsible for being aware of, knowing and understanding all the individual AEPA state and local governing agency's codes, regulations and requirements dealing with public works construction projects.

9.4 If the Contractor is only providing the roofing/protective coating products/systems and the facility's owner/client is utilizing its own crews to install the products/systems, the Contractor must provide the owner with installation instructions, guidelines, requirements and recommendations for the site preparation and installation of the provided solution including onsite training at no cost to the member. However, it should be noted that AEPA and its Members are seeking and prefer Contractors who can provide a turn-key solution.

9.5 If any part of the design or construction work is to be performed by the owner's own crews or architect and/or a third party Contractor not associated with the Offeror/Contractor, the Contractor, prior to taking possession of the project site or proceeding with its work, must provide the owner with a signed affidavit stating that it has inspected and has accepted the current site conditions and work completed as meeting and/or exceeding its and the manufacturer, industry and governmental standards and requirements. If work is not acceptable, the Offeror must notify the owner immediately in writing, stating what is not acceptable and on what this determination was made.

9.6 **R.S. Means Quotations/Proposals:** When providing R.S. Means costs as part of a project's proposal, the following items apply:

1. Contractor must use the most current online edition and standard cost data. Only the following cost data titles will be accepted:

   a. Repair and Remodeling Cost Data
   b. Building Construction Cost Data
   c. Facility Construction Cost Data

2. All work proposed under R.S. Means must use R.S. Means format, even if subcontractors are used. Subcontractor's invoices must tie to the R.S. Means spreadsheet.

3. An R.S. Means spreadsheet must be submitted to substantiate the quote given to the AEPA Participating Entity. The spreadsheet columns must reveal the full R.S. Means number and description. This also applies to any change orders.

4. Pricing must be done by Location Codes. National Average will not be allowed. In order to choose the "closest" location code, the first three (3) numbers of the zip code will be used to determine the city location index in each state.

5. The AEPA contract holder factor, AEPA discount, bonding cost, and sales taxes if applicable, must be shown as separate line items at the bottom of the R.S. Means spreadsheet. This information can be shown on a separate summary sheet. The summary sheet must start with the R.S. Means spreadsheet total and show the detail for each of the items stated above. This detail will be provided to each AEPA State Agency and AEPA Customer.

5. All change orders which list items covered by R.S. Means must be supported by an R.S. Means spreadsheet with the level of detail that meets the requirements of the AEPA Member Agency.

10. Roofing Specific Specifications

The following specifications are meant to be general guidelines for bidding purposes, and represent **"minimum standards"** for roofing materials, installation, maintenance, and labor. Where specific "brand names" or specific "manufacturer codes" are specified, bidders are free to consider and submit "or equal" substitutions.

1. Water Resistant Roofing

2. Pressure cleaning, Vertical walls

2.1 Prior to initiating the pressure washing process, it is essential to gather all of the required equipment and take necessary measures to protect surrounding areas from any potential damage.

2.2 A pressure wash wall with at least 2000 PSI to effectively clean brick, or concrete walls. Nozzle Tip: To prevent damage to brick-and-mortar surfaces, utilize a 25–40-degree nozzle. Rinse surface with clean water after cleaning to remove residue.

2.3 Use only clean, fresh water to remove oil, dirt, grease, chalk, and other debris. To maximize results when pressure washing walls, select a cleaning product specially tailored to this task.

2.4 To protect nearby plants or bushes from being affected by cleaning solutions, cover them using plastic sheeting or tarps. Protect Outdoor Furniture near or against walls, shall be moved or cover them with a tarp to avoid accidental contact with them. Vehicles adjacent to the work area will be moved and the work area cordoned off. Site preparation will be at no additional cost to the Participating Entity.

2.5 All high-pressure units must be operated in accordance with OSHA safety standards. To prevent injuries from occurring, always wear eye protection, gloves, and non-slip shoes for optimal protection.

3. Pressure cleaning, horizontal surfaces

3.1 For pressure cleaning roof surfaces, use power washer unit at pressures of 2,000-5,000 psi with flow rates of 4 to 14 gallons per minute.

3.2 Use only clean, fresh water to remove oil, dirt, grease, chalk, and other debris.

3.3 All high-pressure units must be operated in accordance with OSHA safety standards.

3.4 Rinse surface with clean water after cleaning to remove residue.

4. Roof scanning to identify wet or substandard roof components to be removed

4.1 Follow guide specifications numbers 368 through 371.

4.2 Price accordingly in specification number 368 through 371

5. Asphalt emulsion coating, waterproofing, brush applied, per coat.

5.1 All areas to receive coating must be clean, dry, and smooth.

5.2 Coating must be applied as specified on manufacturer's data sheets and at the rates specified. All emulsions used shall carry UL approved fire ratings, and be an UL listed assembly per 97UBC (1997 Uniform Building Code) and meet any existing approval standards in the state.

5.3 Containers shall be delivered to the worksite suitably packaged to permit acceptance by carrier with each container marked with brand name, type of product, and manufacturer's production code and/or lot number.

5.4 The emulsion shall be of suitable consistency for application above freezing by mop or brush, after stirring to homogeneity.

5.5 The application rate for flashings shall be a minimum of three (3) gallons per square per coat.

5.6 The application rate for new roof applications shall be a minimum of four (4) gallons per square per coat.

6. Rubberized coating, waterproofing, brush applied, per coat.

6.1 All areas to receive coating must be clean, dry, and smooth.

6.2 The butyl acrylic emulsion coating must be applied as specified on manufacturer's data sheets and at the rates specified. The color of the sealant shall be the color agreed upon between the agency member and the prime contractor. All emulsions used shall carry UL approved fire ratings, and be an UL listed assembly per ICC IBC 2021, and meet any existing approval standards in the state.

6.3 The coating shall be composed of selected polymers compounded with appropriate resins, fillers, pigment, solvents, and chemical additives necessary to meet ASTM standards C 1085-91.

6.4 Containers shall be delivered to the worksite suitably packaged to permit acceptance by carrier with each container marked with brand name, type of product, and manufacturer's production code and/or lot number.

6.5 Any and all coatings shall be free from defects.

6.6 The coating application rate for flashings shall be a minimum of three (3) gallons per square, per coat.

6.7 The coating application rate for new roof applications shall be a minimum of four (4) gallons per square per coat.

7. Vinyl/acrylic resin, damp proofing, brush applied per coat.

7.1 All areas to receive coating, especially masonry surfaces, must be clean, dry smooth, and free of any debris.

7.2 The vinyl/acrylic emulsion coating must be applied as specified on manufacturer's data sheets and at the rates specified. The color of the coating shall be the color agreed upon between the agency member and the prime contractor.

7.3 Special attention shall be given to preparation of surfaces requiring removal of all forms of release agents (oil, grease, wax, silicones), admixtures (water-immiscible chemical curing agents) and curing compounds (waxes, resins, film); if removal is not possible, the residue left must be non-detrimental to the waterproofing system, as determined by the prime contractor.

7.4 To prevent blistering or loss of adhesion from moisture encapsulated in concrete or masonry surfaces, prime contractor recommendations for a vapor permeable system must be followed.

7.5 Containers shall be delivered to the worksite suitably packaged to permit acceptance by carrier with each container marked with brand name, type of product, and manufacturer's production code and/or lot number.

7.6 The coating shall be free from defects.

8. Non-pigmented synthetic resin, waterproofing, one coat sprayed on.

8.1 All areas to receive coating must be clean, dry, and smooth.

8.2 The non-pigmented synthetic resin coating must be applied as specified on manufacturer's data sheets and at the rates specified.

8.3 Containers shall be delivered to the worksite suitably packaged to permit acceptance by carrier with each container marked with brand name, type of product, and manufacturer's production code and/or lot number.

8.4 The coating shall be free from defects.

9. Caulking: remove existing, clean and prime joint.

9.1 Remove any existing caulk from joints.

9.2 Clean joint; prime with primer as specified by the manufacturer of the caulking material. The purpose of the primer is to improve the adhesion of the caulk. (Note: Unanticipated field conditions may require a change in the type of caulk or primer. Prime contractor has the authority to order a no cost change.)

9.3 Install specified backer rod to achieve required joint depths and shape, to permit full sealant wetting of the substrate surface when tooled, and to act as a temporary joint seal. If lack of immediate sealant application results in weathering, the backer rod shall be replaced with new sealant backing at no additional cost to the owner.

9. 4 Use bond breaker tape as specified by the caulk manufacturer. The bond-breaker may be a polyethylene or TFE-fluorocarbon self-adhesive tape, or one approved by the manufacturer of the caulk.

9.5 Install sealant in accordance with ASTM C 1193.

9.6 Follow the caulking manufacturer recommendations, tool all joints.

9.7 Joints shall be free of air pockets, foreign matter, ridges, and sags.

9.8 Adjoining surfaces and sealed joints shall be free of smears and other soiling. If a masking tape is used to protect from smears, it must be non-staining, non-absorbent, and must not disturb the sealant when carefully removed. Remove any excess caulking.

10. Caulking, epoxied urethane compound, 2 components, 1/4" x 1/4", in place.

10.1 Epoxied urethane base (one component) plus catalyst (2nd compound), chemical curing. Type 1, self-leveling; Type 2, non-sagging; conforming to FS-TT-S-00227, Class A; ASTM C 804, shore hardness 25 minimum to 35 maxima.

10.2 Caulk must be non-staining. Color approved by buyer.

10.3 Wipe prepared joint free of all debris; verify joint depth using backer rod as specified by caulking manufacturer's specifications.

10.4 Install bond breaker tape where required by manufacturer.

10.5 Mix sealant as specified on labels.

10.6 Install caulking into prepared joint and tool per prime contractor's instruction, concave or convex.

10.7 Caulking must be free of wrinkles, sags, ridges, air pockets and debris.

10.8 Clean adjoining surfaces.

11. Caulking, polyurethane, 1 component, 1/4" x 1/4", in place.

11.1 Polyurethane base, single component, chemical curing. Conforms to FS-TT-S-00230 and ASTM C 804, shore hardness, 25 minimum to 35 maximum. Participating Entity selects color.

11.2 Wipe prepared joint free of all debris; verify joint depth using backer rod as specified by caulking manufacturer's specifications.

11.3 Install bond breaker tape where required by prime contractor.

11.4 Install caulking into prepared joint and tool per prime contractor's instruction, concave or convex.

11.5 Caulking must be free of wrinkles, sags, ridges, air pockets and debris.

11.6 Clean adjoining surfaces.

12. Caulking, polyurethane, 1 component, 1/2" x 1/2", in place.

12.1 Polyurethane base, single component, chemical curing. Conforms to FS-TT-S-00230 and ASTM C 804, shore hardness, 25 minimum to 35 maximum. Participating Entity selects color.

12.2 Wipe prepared joint free of all debris; verify joint depth using backer rod as specified by sealant manufacturer's specifications.

12.3 Install bond breaker tape where required by prime contractor.

12.4 Install caulking into prepared joint and tool per manufacturer's instruction, concave or convex.

12.5 Caulking must be free of wrinkles, sags, ridges, air pockets and debris.

12.6 Clean adjoining surfaces.

13. Caulking, silicone rubber, 1 component, 1/4" x 1/4", in place.

13.1 Silicone base, single component, chemical curing. Conforms to FS-TT-S-1543, Class A, shore hardness A - 50 maximum.

13.2 Caulk must be non-staining and color approved by member.

13.3 Wipe prepared joint free of all debris; verify joint depth using backer rod as specified by caulking manufacturer's specifications.

13.4 Install bond breaker tape where required by prime contractor.

13.5 Mix sealant as specified on labels.

13.6 Install caulking into prepared joint and tool per prime contractor's instruction, concave or convex.

13.7 Caulking must be free of wrinkles, sags, ridges, air pockets and debris

13.8 Clean adjoining surfaces.

14. Caulking, epoxied urethane compound, 2 component, 1/4" x 1/4", in place.

14.1 Epoxied urethane base (one component) plus catalyst (2nd compound), chemical Curing. Type 1, self-leveling; Type 2, non-sagging; conforming to FS-TT-S-00227, Class A; ASTM C 804, shore hardness 25 minimum to 35 maximum.

14.2 Caulk must be non-staining. Color approved by member.

14.3 Wipe prepared joint free of all debris; verify joint depth using backer rod as specified by caulking manufacturer's specifications.

14.4 Install bond breaker tape where required by manufacturer.

14.5 Install caulking into prepared joint and tool per prime contractor's instruction, concave or convex.

14.6 Caulking must be free of wrinkles, sags, ridges, air pockets and debris.

14.7 Clean adjoining surfaces.

15. Caulking, silicone rubber, 1 component, 3/4" x 3/8", in place.

15.1 Silicone base, single component, chemical curing. Conforms to FS-TT-S-1543, Class A, shore hardness A - 50 maximum.

15.2 Caulk must be non-staining and color approved by member.

15.3 Wipe prepared joint free of all debris; verify joint depth using backer rod as specified by caulking manufacturer's specifications.

15.4 Install bond breaker tape where required by prime contractor.

15.5 Install caulking into prepared joint and tool per prime contractor's instruction, concave or convex.

15.6 Caulking must be free of wrinkles, sags, ridges, air pockets and debris.

15.7 Clean adjoining surfaces.

16. Backer rod, polyethylene, 3/8" diameter, installed in prepared opening.

16.1 Closed cell polyethylene, extruded, round, lightweight, non-impregnated, non-bleeding, non- staining, and odor free. Must be chemical resistant with negligible water absorptive characteristics and meet or exceed ASTM D-994-77.

16.2 Inspect joint to be sure all preparations are complete. Verify inspection.

16.3 Install backer into joint at depth specified by caulking manufacturer, minimum 25% compression.

16.4 Joint ends to be flush with no gaps.

16.5 Must be installed same day as caulking.

17. Backer rod, polyethylene, 1/2" diameter, installed in prepared opening.

17.1 Closed cell polyethylene, extruded, round, lightweight, non-impregnated, non-bleeding, non- staining, and odor free. Must be chemical resistant with negligible water absorptive characteristics and meet or exceed ASTM D-994-77.

17.2 Inspect joint to be sure all preparations are complete. Verify inspection.

17.3 Install backer into joint at depth specified by caulking manufacturer, minimum 25% compression.

17.4 Joint ends to be flush with no gaps.

17.5 Must be installed same day as caulking.

18. Backer rod, polyethylene, 3/4" diameter, installed in prepared opening.

18.1 Closed cell polyethylene, extruded, round, lightweight, non-impregnated, non-bleeding, non-staining, and odor free. Must be chemical resistant with negligible water absorptive characteristics and meet or exceed ASTM D-994-77.

18.2 Inspect joint to be sure all preparations are complete. If you see some debris, remove it from the joint. Deposit the debris in a proper debris depository.

18.3 Install backer into joint at depth specified by caulking manufacturer, minimum 25% compression.

18.4 Joint ends to be flush with no gaps.

18.5 Must be installed same day as caulking.

19. Backer rod, polyethylene, 1" diameter, installed in prepared opening.

19.1 Closed cell polyethylene, extruded, round, lightweight, non-impregnated, non-bleeding, non-staining, and odor free. Must be chemical resistant with negligible water absorptive characteristics and meet or exceed ASTM D-994-77.

19.2 Inspect joint to be sure all preparations are complete. Continue to use sound judgment to verify inspection.

19.3 Install backer into joint at depth specified by caulking manufacturer, minimum 25% compression.

19.4 Joint ends to be flush with no gaps.

19.5 Must be installed same day as caulking.

20. Building paper, asphalt felt sheathing paper, 1 ply, 15#, in place.

20.1 Use 15 lb. organic felt that meets or exceeds ASTM D-226-89, Type I, UL label. If it contains any asbestos, don't use it.

20.2 Nails are to be hot dipped galvanized 11 or 12-gauge barb shank with 3/8" heads, sharp pointed and long enough to penetrate and grasp 3/4" or 1". Capped Simplex or Maze nails or approved equals may be used.

20.3 After deck has been inspected and found to be clean and ready, nail fell to roof deck with approved fasteners, as specified.

20.4 Run felts single fashion starting at low point and running to ridge.

20.5 Side laps to be 2" minimum; end laps, 6" minimum.

20.6 Seal penetrations with approved mastic to meet or exceed ASTM D-2822 and Federal Specification SS-C-153, Type I, asbestos free.

21. Building paper, asphalt felt sheathing paper, 1 ply, 40#, in place.

21.1 Use 40 lb. organic felt that meets or exceeds ASTM D-226-89, Type I, UL label. If it contains any asbestos, don't use it.

21.2 Nails are to be hot dipped galvanized 11 or 12-gauge barb shank with 3/8" heads, sharp pointed and long enough to penetrate and grasp 3/4" or 1". Capped Simplex or Maze nails or approved equals may be used.

21.3 After deck has been inspected and found to be clean and ready, nail felt to roof deck with approved fasteners, as specified.

21.4 Run felts single fashion starting at low point and running to ridge.

21.5 Side laps to be 2" minimum; end laps, 6" minimum.

21.6 Seal penetrations with approved mastic to meet or exceed ASTM D-2822 and Federal Specification SS-C-153, Type I, asbestos free.

22. Building paper, red rosin paper, 5 square rolls, 4 # in place.

22.1 Red rosin paper, weighing 4 lb./100 square feet that meets ASTM D-549-74.

22.2 Use fasteners specified by prime contractor for deck type.

22.3 Mechanically fasten red rosin to nailable deck with correct fasteners. Use fastening pattern that meets FM I-90.

23. Vapor retarder adhered, 2 ply inorganic, glass, Type IV, applied in Type IV (or appropriate type) asphalt, in place.

23.1 Asphalt water-based primer to meet ASTM D-3960-87.

23.2 Asphalt, Type IV steep (or appropriate Type), UL, Class ASTM D 312-84. 9.1.18.3 Inorganic glass roof ply, Type IV, unperforated, 36" wide, ASTM D 2178.

23.3 Prime deck; use one gallon of primer for every 150-200 sq. ft.

23.4 Install two plies of specified felt in a continuous mopping of specified asphalt at a rate of 25 lbs. per square per ply.

23.5 Run felts shingle fashion. Broom all plies at application. Extend all plies to top of cant and seal.

23.6 Glaze coat finished piles with asphalt specified at a rate of 15 lbs. per square.

24. Vapor retarder, 2 ply organic, Type 15 pound, applied in Type IV asphalt (or appropriate type), in place.

24.1 Asphalt water-based primer to meet ASTM D-3960-87.

24.2 Asphalt, Type IV (or appropriate type) steep, UL, Class ASTM D 312-84.

24.3 Organic roof ply, ASTM D 266-89, Type I, unperforated, 36" wide.

24.4 Concrete decks: prime deck; use one gallon of primer for every 150-200 sq. ft.

24.5 Nailable decks: mechanically attach first ply to FM 1-90 fastening pattern; install second ply of specified felt into a continuous mopping of specified asphalt at a rate of 25 lbs. per 100 square feet.

24.6 Run felts shingle fashion. Broom all plies at application. Extend all plies to top of cant and seal.

24.7 Glaze coat finished piles with asphalt specified at a rate of 15 lbs. per square.

25. Vapor retarder; 2-ply inorganic, glass, Type IV, applied in cold adhesive to 4' x 8' x 1/4" glass-mat embedded, water resistant gypsum core panel mechanically fastened.

25.1 Nonstructural, glass-mat embedded, water resistant gypsum core panel, UL 1356 as a thermal barrier underlayment over steel decks.

25.2 Fasteners with 3" galvanized metal plates.

25.3 Provide equipment, materials, tools and experienced labor to install gypsum core panels. Attach panel to the substrate with approved fastening methods as follows.

25.4 Mechanically attached: join single layer insulation to deck with approved fastener one (1) every two (2) square feet. Install additional fasteners to ensure insulation is firmly affixed, per manufacturer's instructions.

25.5 Fasteners are to be flush with top surface of insulation.

25.6 Filler insulation requires two (2) fasteners per piece.

25.7 Form continuous joints over deck flange. Do not cantilever edges over deck ribs, minimum bearing surface 1 1/2", and doesn't exceed 35 psi in accordance with ASTM C 165.

25.8 Insulation must meet UL and FM requirements; must not have over 1/4" joints between boards.

25.9 Joints must be staggered a minimum of 12".

25.10 Workmanship must be superior; must comply with FM, UL and Roofing Materials Manufacturer's guidelines and specifications.

25.11 Asphalt water-based primer must meet ASTM D 3960-87.

25.12 Cold asphalt adhesive must be UL approved, be applied at 2 gallons per 100 square feet, inner ply. Must meet SCAQMD VOC limits and contain no asbestos as per ASTM D 276- 87.

25.13 Inorganic glass roof ply, Type IV, unperforated, 36" wide, ASTM D 2178.

25.14 Prime substrate; use one gallon of primer every 150-200 square feet.

25.15 Install two plies of specified felt in a continuous application of specified cold adhesive at a rate of 2 gallons per 100 square feet per ply.

25.16 Run felts shingle fashion. Broom all plies at application. Extend all plies to top of cant and seal.

26. Insulation

27. Demolition of roof insulation, per inch of depth.

27.1 Remove existing insulation down to roof deck.

27.2 Remove all debris from job site and dispose of in an approved landfill.

27.3 Be sure all debris is removed from flutes in deck and in any area debris might settle. 27.4 All demolition work must comply with OSHA, EPA, and local building codes and regulations.

27.4 If applicable, remove all fasteners from decking.

28. Demolition of lightweight cementitious fill, per inch of depth.

28.1 Using mechanical, manual, or other approved means, remove cementitious fill.

28.2 Clean subdeck of all rubbish.

28.3 Dispose of all rubbish and litter; all demolition work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations.

28.4 Using self-tapping, coated metal deck fasteners, reattach laps, seams, and loose metal, if applicable as needed.

29. Roof deck insulation, Isocyanurate in 4' x 4' or 4' x 8' sheets with fiberglass facers, 1" thick, R-6.6, applied into Type IV (or appropriate) asphalt.

29.1 Isocyanurate, HH-I-1972/GEN and HH-I-1972/2 Fire Approval, Class I, with UL labels.

29.2 Steep Asphalt, Type IV (or appropriate) meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

29.3 Provide equipment, materials, tools, and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

29.4 Hot applications: adhere insulation to primed deck with continuous mopping of appropriate asphalt at the rate of 30 lbs. per 100 square feet.

29.5 Cold applications: adhere insulation to thermal barrier with a cold adhesive at a rate of 1.5 gallons per 100 square feet.

29.6 Hot applied to sub insulation; adhere with a continuous mopping of appropriate asphalt at a rate of 30 lbs. per 100 square feet.

29.7 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

29.8 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

30. Roof deck insulation, Isocyanurate in 4’ x 4’ or 4’ x 8’ sheets with fiberglass facers, 1 1/2” thick, R-10.0, applied Type IV (or appropriate) asphalt.

30.1 Isocyanurate, HH-I-1972/GEN and HH-I-1972/2 Fire Approval, Class I, with UL labels.

30.2 Steep Asphalt, Type IV (or appropriate) meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

30.3 Provide equipment, materials, tools, and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

30.4 Hot applications: adhere insulation to primed deck or sub-insulation with continuous mopping of steep or appropriate asphalt at the rate of 30 lbs. per 100 square feet.

30.5 Cold applications: adhere insulation to primed deck or sub-insulation with a cold adhesive at a rate of 1.5 gallons per 100 square feet.

30.6 Insulation must meet UL and FM requirements and must not have over 1/4” joints between boards.

30.8 Joints must be staggered a minimum of 12”.

30.9 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer’s guidelines and specifications.

31. Roof deck insulation, Isocyanurate in 4’ x 4’ or 4’ x 8’ sheets, 1” thick, R-6.6, mechanically fastened.

31.1 Isocyanurate, HH-I-1972/GEN and HH-I-1972/2 Fire Approval, Class I and/or labeled with UL/FM labels.

31.2 Fasteners with 3” galvanized metal plates.

31.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Attach the insulation to the substrate with approved fastening methods, as follows.

31.4 Mechanically attached: mechanically join single layer insulation to deck with approved fastener minimum of one (1) every 2 square feet. Install additional fasteners to ensure insulation is firmly affixed, especially at parapets and at perimeters, as required per FM I-90 (depending on deck location and height).

31.5 Fasteners are to be flush with top surface of insulation.

31.6 Filler insulation requires two (2) fasteners per piece.

31.7 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2” and doesn’t exceed 35 psi in accordance with ASTM C 165. The attachment and flute span will be in accordance with insulation board manufacturer’s specifications and comply with UL, Class A and FM I-90 attachment standards.

31.8 Insulation must meet UL and FM requirements and must not have over 1/4” joints between boards.

31.9 Joints must be staggered a minimum of 12”.

31.10 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer’s guidelines and specifications.

32. Roof deck insulation, Isocyanurate in 4’ x 4’ or 4’ x 8’ sheets with fiberglass facers, 1 1/2” thick, R-10.0, mechanically fastened.

32.1 Isocyanurate, HH-I-1972/GEN and HH-I-1972/2 Fire Approval, Class I and/or labeled with UL/FM labels.

32.2 Fasteners with 3” galvanized metal plates.

32.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Attach the insulation to the substrate with approved fastening methods, as follows.

32.4 Mechanically attached: mechanically join single layer insulation to deck with approved fastener minimum of one (1) every 2 square feet. Install additional fasteners to ensure insulation is firmly affixed, especially at parapets and at perimeters, as required per FM I-90 (depending on deck location and height).

32.5 Fasteners are to be flush with top surface of insulation.

32.6 Filler insulation requires two (2) fasteners per piece.

32.7 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2" and doesn't exceed 35 psi in accordance with ASTM C 165. Attachment and flute span will be in accordance with insulation board manufacturer's specifications and comply with UL, Class A and FM I-90 attachment standards.

32.8 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

32.9 Joints must be staggered a minimum of 12".

32.10 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

33. Roof deck insulation, fiberboard in 4' x 4' sheets, 1/2" thick, R-1.39, applied Type IV (or appropriate) asphalt coated six sides.

33.1 High-density fiberboard ASTM C 208-82, HH-I-526C for fiberboard with flame spread of 25 maximum. Must comply with ASTM D 84 and have compressive resistance not more than 35 psi as per ASTM c 165.

33.2 Steep Asphalt, Type IV (or appropriate type) meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

33.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

33.4 Hot applications: adhere insulation to primed deck with continuous mopping of steep or appropriate asphalt at the rate of 30 lbs. per 100 square feet.

33.5 Cold applications: adhere insulation to primed deck or sub-insulation with a cold adhesive at a rate of 1.5 gallons per 100 square feet.

33.6 Hot applied: adhere with a continuous mopping of steep or appropriate asphalt at a rate of 30 lbs. per 100 square feet. Walk insulation down. Spread bitumen pools. Do not allow bitumen to accumulate on surface of insulation.

33.7 Filler insulation requires two (2) fasteners per piece, or as stated by manufacturer.

33.8 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2" and doesn't exceed 35 psi in accordance with ASTM C 165. Attachment and flute span will be in accordance with insulation board manufacturer's specifications and comply with UL, Class A and FM I-90 attachment standards.

33.9 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

33.10 Joints must be staggered a minimum of 12".

33.11 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

34. Roof deck insulation, fiberboard in 4' x 8' sheets, 25/32" thick, R-2.4, installed hot/cold or mechanically attached, coated six sides.

34.1 High-density fiberboard ASTM C 208-82, HH-I-526C for fiberboard with flame spread of 25 maximum. Must comply with most current ASTM D 84 and have compressive resistance not more than 35 psi as per ASTM C 165.

34.2 Steep Asphalt, Type IV (or appropriate type) meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

34.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

34.4 Hot applications: adhere insulation to primed deck with continuous mopping of steep or appropriate asphalt at the rate of 30 lbs. per 100 square feet.

34.5 Cold applications: adhere insulation to primed deck or sub-insulation with a cold adhesive at a rate of 1.5 gallons per 100 square feet.

34.6 Hot applied to sub insulation; adhere with a continuous mopping of steep or appropriate asphalt at a rate of 30 lbs. per 100 square feet. Walk insulation down. Spread bitumen pools. Do not allow bitumen to accumulate on surface of insulation.

34.7 Mechanically attached: mechanically join single layer insulation to deck with approved fastener minimum of one (1) every 2 square feet. Install additional fasteners to ensure insulation is firmly affixed, especially at parapets and at perimeters, as required per FM I-90 (depending on deck location and height).

34.8 Three-inch galvanized metal plate fasteners are to be flush with top surface of insulation.

34.9 Filler insulation requires two (2) fasteners per piece.

34.10 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2" and doesn't exceed 35 psi in accordance with ASTM C 165. The attachment and flute span will be in accordance with insulation board manufacturer's specifications and comply with UL, Class A and FM I-90 attachment standards.

34.11 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

34.12 Joints must be staggered a minimum of 12".

34.13 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

35. Roof deck insulation, fiberboard in 4' x 4', 1" thick, R-2.78, applied Type IV (or appropriate) asphalt, coated six sides.

35.1 High-density fiberboard ASTM C 208-82, HH-I-526C for fiberboard with flame spread of 25 maximum. Must comply with ASTM D 84 and have compressive resistance not more than 35 psi as per ASTM c 165.

35.2 Steep or appropriate Asphalt, Type IV meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

35.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

35.4 Hot applications: adhere insulation to primed deck or sub-insulation with continuous mopping of steep or appropriate asphalt at the rate of 30 lbs. per 100 square feet.

35.5 Cold applications: adhere insulation to primed deck or sub-insulation with a continuous mopping of steep or appropriate asphalt at a rate of 30 lbs. per 100 square feet.

35.6 Cold applied: adhere with a cold adhesive at a rate of 1.5 gallons per 100 square feet. Walk insulation down. Spread bitumen pools. Do not allow bitumen to accumulate on surface of insulation, or on workers shoes.

35.7 Filler insulation requires two (2) fasteners per piece, or as recommended by manufacturer.

35.8 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2" and doesn't exceed 35 psi in accordance with ASTM

C 165. Attachment and flute span will be in accordance with insulation board manufacturer's specifications and comply with UL, Class A and FM I-90 attachment standards.

35.9 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

35.10 Joints must be staggered a minimum of 12".

35.11 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

36. Roof deck insulation, fiberboard in 4' x 4' sheets, 1/2" thick, R-1.39, mechanically fastened, coated six sides.

36.1 High-density fiberboard ASTM C 208-82, HH-I-526C for fiberboard with flame spread of 25 maximum. Must comply with ASTM D 84 and have compressive resistance not more than 35 psi as per ASTM C 165.

36.2 Fasteners with 3" galvanized metal plates.

36.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

36.4 Mechanically attached: mechanically join single layer insulation to deck with approved fastener minimum of one (1) every 2 square feet. Install additional fasteners to ensure insulation is firmly affixed, especially at parapets and at perimeters, as required per FM I-90 (depending on deck location and height).

36.5 Fasteners are to be flush with top surface of insulation.

36.6 Filler insulation requires two (2) fasteners per piece.

36.7 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2" and doesn't exceed 35 psi in accordance with ASTM C 165.

36.8 Attachment and flute span will be in accordance with insulation board manufacturer's specifications and comply with UL, Class A and FM I-90 attachment standards.

36.9 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

36.10 Joints must be staggered a minimum of 12".

36.11 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

37. Roof deck insulation, fiberboard in 4' x 4', 1" thick, R-2.78, mechanically fastened, coated six sides.

37.1 High-density fiberboard ASTM C 208-82, HH-I-526C for fiberboard with flame spread of 25 maximum. Must comply with ASTM D 84 and have compressive resistance not more than 35 psi as per ASTM C 165.

37.2 Fasteners with 3" galvanized metal plates.

37.3 Provide equipment, materials, tools and experienced labor to install rigid roof insulation. Adhere the insulation to the substrate with approved fastening methods, as follows.

37.4 Mechanically attached: mechanically join single layer insulation to deck with approved fastener minimum of one (1) every 2 square feet. Install additional fasteners to ensure insulation is firmly affixed, especially at parapets and at perimeters, as required per FM I-90 (depending on deck location and height).

37.5 Fasteners are to be flush with top surface of insulation.

37.6 Filler insulation requires two (2) fasteners per piece.

37.7 Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs, minimum bearing surface 1 1/2" and doesn't exceed 35 psi in accordance with ASTM C 165.

37.8 Attachment and flute span will be in accordance with insulation board manufacturer's specifications and comply with UL, Class A and FM I-90 attachment standards.

37.9 Insulation must meet UL and FM requirements and must not have over 1/4" joints between boards.

37.10 Joints must be staggered a minimum of 12".

37.11 Workmanship must be superior and comply with most current NRCA, FM, UL and roofing material manufacturer's guidelines and specifications.

38. Roof deck insulation, lightweight cellular, wire-reinforced concrete fill, R-value depending on thickness, per inch of depth.

38.1 Prepare areas for cellular concrete.

38.2 Install cellular concrete, 2" minimum thickness, sloped to existing drains. Slope shall be 1/4" per running foot, minimum.

38.3 Cover deck with slurry coat. Graduate thickness of insulation from high to low point. Stagger end joints and butt all joints to moderate contact. Allow slurry coat/insulation to set for 24 hours.

38.4 Install top pour of cellular concrete over insulation. Fill all bond holes. A minimum of 2" thickness over the insulation is required.

38.5 Use screeds (leveling devices) and darbies to attain smooth, even surface.

38.6 Carefully plan the work to avoid cold joints, but if you have any, scarify cold joints to provide mechanical key.

38.7 During winter months, protect installation from freezing until initial set is attained.

38.8 Provide reinforcing mesh into all areas where cellular concrete is placed. Butt or space sides not more than 4"; cut mesh to fit all walls, curbs, and openings. (Note: to meet FM requirements, mesh must be used.)

38.9 Mix and pump cellular concrete into place using personnel and equipment approved of by the concrete manufacturer. Mixing time shall be enough to provide a consistent, thorough concoction that will freely flow and screed to a smooth surface.

38.10 Proportion cellular concrete to provide a density of 40 lbs./cubic foot, ± 5% and 28-day compressive strength of 160 psi.

38.11 Pour cellular concrete only when temperatures are predicted to be above 40°F for the next two days.

38.12 Provide daily 2-ply bituminous tie-in connections at cellular concrete/roofing terminations.

38.13 If applicable, remove embedded gravel from top ply along termination. (Width of 8")

38.14 Install 5-course felt/mesh bituminous reinforcement; extend membrane at least 6" onto roofing and top surface of cellular cement using asphalt mastic or flashing bitumen. Make everything watertight.

38.15 Seal any surface cracks with asphalt mastic.

38.16 Spray curing compound to entire surface within 24 hours of placement.

38.17 Allow cellular concrete to cure and become hard to withstand foot traffic and other light roof operations, approximately 3 days. Before one is allowed on the new roof, be sure exposed surface is dry.

39. Roof deck insulation, vermiculite at 1/8:12, R-value depending on thickness, per inch of depth.

39.1 Prepare areas for concrete with vermiculite aggregate.

39.2 Install vermiculite concrete, 2” minimum thickness, sloped to existing drains. Slope shall be 1/8” per running foot, minimum.

39.3 Cover deck with slurry coat. Graduate thickness of insulation from high to low point. Stagger end joints and butt all joints to moderate contact. Allow slurry coat/insulation to set for 24 hours.

39.4 Install top pour of vermiculite concrete over tapered expanded polystyrene board (EPS). Fill all bond holes. A minimum of 2” thickness over the insulation is required.

39.5 Use screeds (leveling devices) and darbies to attain smooth, even surface.

39.6 Carefully plan the work to avoid cold joints, but if you have any, scarify cold joints to provide mechanical key.

39.7 During winter months, protect installation from freezing until initial set is attained.

39.8 Provide reinforcing mesh into all areas where vermiculite concrete is placed. Butt or space sides not more than 4”; cut mesh to fit all walls, curbs, and openings. (Note: to meet FM requirements, mesh must be used.)

39.9 Mix and pump vermiculite concrete into place using personnel and equipment approved of by the concrete manufacturer. Mixing time shall be sufficient to provide a consistent, thorough concoction that will freely flow and screed to a smooth surface.

39.10 Proportion vermiculite concrete to provide a density of 40 lbs./cubic foot, ± 5% and 28-day compressive strength of 160 psi.

39.11 Pour vermiculite concrete only when temperatures are predicted to be above 40°F for the next two days.

39.12 Provide daily 2-ply bituminous tie-in connections at vermiculite concrete/roofing terminations.

39.13 Remove embedded gravel from top ply along termination. (Width of 8”).

39.14 Install 5-course felt/mesh bituminous reinforcement; extend membrane at least 6” onto roofing and top surface of vermiculite cement using asphalt mastic or flashing bitumen. Make everything watertight!

39.15 Seal any surface cracks with asphalt mastic.

39.16 Spray curing compound to entire surface within 24 hours of placement.

39.17 Allow vermiculite concrete to cure and become hard to withstand foot traffic and other light roof operations, approximately 3 days. Before anyone is allowed on the new roof, be sure exposed surface is dry.

40. Roof deck insulation, vermiculite at 1/4:12, R-value based on thickness, per inch of depth.

40.1 Prepare areas for concrete with vermiculite aggregate.

40.2 Install vermiculite concrete, 2” minimum thickness, sloped to existing drains. Slope shall be 1/4” per running foot, minimum.

40.3 Cover deck with slurry coat. Graduate thickness of insulation from high to low point. Stagger end joints and butt all joints to moderate contact. Allow slurry coat/insulation to set for 24 hours.

40.4 Install top pour of vermiculite concrete over tapered expanded polystyrene board (EPS). Fill all bond holes. A minimum of 2” thickness over the insulation is required.

40.5 Use screeds (leveling devices) and darbies to attain smooth, even surface.

40.6 Carefully plan the work to avoid cold joints, but if you have any, scarify cold joints to provide mechanical key.

40.7 During winter months, protect installation from freezing until initial set is attained.

40.8 Provide reinforcing mesh into all areas where vermiculite concrete is placed. Butt or space sides not more than 4"; cut mesh to fit all walls, curbs, and openings. (Note: to meet FM requirements, mesh must be used.)

40.9 Mix and pump vermiculite concrete into place using personnel and equipment as approved by the concrete manufacturer. Mixing time shall be sufficient to provide a consistent, thorough concoction that will freely flow and screed to a smooth surface.

40.10 Proportion vermiculite concrete to provide a density of 40 lbs./cubic foot, ± 5% and 28day compressive strength of 160 psi.

40.11 Pour vermiculite concrete only when temperatures are predicted to be above 40°F for the next two days.

40.12 Provide daily 2-ply bituminous tie-in connections at vermiculite concrete/roofing terminations.

40.13 Remove embedded gravel from top ply along termination. (Width of 8")

40.14 Install 5-course felt/mesh bituminous reinforcement; extend membrane at least 6" onto roofing and top surface of vermiculite cement using asphalt mastic or flashing bitumen. Make everything watertight.

40.15 Seal any surface cracks with asphalt mastic.

40.16 Spray curing compound to entire surface within 24 hours of placement.

40.17 Allow vermiculite concrete to cure and become hard to withstand foot traffic and other light roof operations, approximately 3 days. Before anyone is allowed on the new roof, be sure exposed surface is dry.

41. Roof deck insulation, gypsum panels, 3" thick.

41.1 Remove existing decking.

41.2 Replace gypsum panels; stabilize and provide bracing for the purlins, as necessary.

41.3 Install per manufacturer's instruction. Gypsum planks will have UL classification markings.

41.4 Gypsum will not be used in areas of high humidity and wetness.

42. Roof deck insulation, Isocyanurate (black facer only), tapered, 1/8" per foot slope, applied in Type IV (or appropriate type) asphalt, per inch of depth.

42.1 Use 1/8" tapered iso-board (black facer) that meets or exceeds HH-I-1972/GEB and HH-I-1972/2 fire approval Class I and labeled with UL/FM labels.

42.2 Steep or appropriate Asphalt, Type IV meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

42.3 Install tapered insulation.

42.4 Insulation shall have a minimum thickness of 1" at any point on the deck and must be tapered when laid in a manner to eliminate ponding and allow for positive drainage.

42.5 Set insulation in a continuous mopping of asphalt, applied at a rate of 30 lbs. per 100 square feet.

42.6 Embed insulation into asphalt, leaving no voids or loose boards. Any joint over 1/4" must be filled.

42.7 Apply asphalt at rate of 30 lbs. per 100 square feet; asphalt shall be at no more than 500°F and applied between 400-475°.

42.8 Apply in continuous mopping; don't set boards in cold asphalt.

43. Roof deck insulation, Isocyanurate (black facer only), tapered, 1/4" per foot slope, applied in Type IV (or appropriate) asphalt, per inch of depth.

43.1 Use 1/4" tapered iso-board (black facer) that meets or exceeds HH-I-1972/GEB and HH-I-1972/2 fire approval Class I and labeled with UL/FM labels.

43.2 Steep or appropriate Asphalt, Type IV meeting ASTM D 312-89, applied at a rate of 30 lbs. per 100 square feet.

43.3 Install tapered insulation.

43.4 Insulation shall have a minimum thickness of 1" at any point on the deck and must be laid in a manner to eliminate ponding and allow for positive drainage.

43.5 Set insulation in a continuous mopping of asphalt.

43.6 Embed insulation into asphalt, leaving no voids or loose boards. Any joint over 1/4" must be filled.

43.7 Apply asphalt at rate of 30 lbs. per 100 square feet; asphalt shall be at no more than 500°F and applied between 400-475°.

43.8 Apply in continuous mopping; don't set boards in cold asphalt.

44. Cold insulation adhesive.

44.1 Cold insulation adhesive is for places where the deck is exposed on underside or where hot adhesive, or mechanical attachment is not desirable.

44.2 Adhesive for fiberboard, fiberglass and Isocyanurate insulating boards.

44.3 Nominal 100% solid, moisture curing, asphaltic urethane adhesive for use in adhering insulation and base sheets in bur systems. Must be 8.5 lbs./gallon, have 200 psi tensile strength (see ASTM D 412-87); shall pass the Cold Brittleness of ASTM D 81692 at -60° F.

44.4 Prime surface to receive adhesive with water-based primer.

44.5 Allow primer to dry.

44.6 Apply at rate of 1 to 1.5 gallons per 100 square feet.

44.7 Install base sheet or insulation per manufacturer's printed directions, as needed.

45. CDX Gypsum 1/4" x 4' x 8', mechanically attached.

45.1 Install per manufacturer's instructions.

46. CDX Gypsum 1/4" x 4' x 8', set into adhesive.

46.1 Install per manufacturer's instructions.

47. CDX Gypsum 1/2" x 4' x 8', mechanically attached.

47.1 Install per manufacturer's instructions.

48. CDX Gypsum 1/2" x 4' x 8', set into adhesive.

48.1 Install per manufacturer's instructions.

49. CDX Gypsum with fiberglass facer: 1/4" x 4' x 8', mechanically attached.

49.1 Install per manufacturer's instructions.

50. CDX Gypsum with fiberglass facer: 1/4" x 4' x 8', set into adhesive.

50.1 Install per manufacturer's instructions.

51. CDX Gypsum with fiberglass facer: 1/2" x 4' x 8', mechanically attached.

51.1 Install per manufacturer's instructions.

52. CDX Gypsum with fiberglass facer: 1/2" x 4' x 8', set into adhesive.

52.1 Install per manufacturer's instructions.

53. Roof Tiles and Shingles

54. Remove composition shingles and felts to decking (test for asbestos prior to removal).

54.1 Remove existing felts, shingles, and fasteners down to roof deck.

54.2 Remove all debris from job site and dispose of in an approved landfill.

54.3 Be sure all debris is removed from deck and in any area litter might settle.

54.4 All demolition work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations.

54.5 If applicable, remove all fasteners from decking.

54.6 Inspect deck and repair any defects as permitted in contract.

54.7 Install one layer of 15 lb. felt after above work is accomplished [felt, 15 lbs., meets or exceeds ASTM D 221-78, Type IV and must carry UL labels].

54.8 On slopes above 3:12 but below 4:12, install two layers of 15 lb. felt (repeat 3.3.1.1 through 3.3.1.8, as necessary).

55. Remove clay, concrete, or slate roof tiles to decking.

55.1 Remove existing felts, tiles and/or shingles down to roof deck. Keep and stockpile reusable tiles, upon request of buyer.

55.2 Remove all debris from job site and dispose of in an approved landfill.

55.3 Be sure all debris is removed from deck and in any area litter might settle.

55.4 All demolition work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations.

55.5 If applicable, remove all fasteners from decking.

55.6 Inspect deck and repair any defects as permitted in contract.

55.7 Install one layer of 30 lb. felt after above work is accomplished [felt, 30 lbs., meets or exceeds ASTM D266-89, Type II and must carry UL labels].

56. Remove wood shingles and felts to decking.

56.1 Remove existing felts and shingles down to roof deck.

56.2 Remove all debris from job site and dispose of in an approved landfill.

56.3 Be sure all debris is removed from deck and in any area litter might settle.

56.4 All demolition work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations.

56.5 If applicable, remove all fasteners from decking.

56.6 Inspect deck and repair any defects as permitted in contract.

56.7 Install one layer of 30 lb. felt after above work is accomplished [felt, 30 lbs., meets or exceeds ASTM D266-89, Type II and must carry UL labels].

57. Shingles, fiberglass, Class A, 25-year strip shingles, slopes 3:12 or greater.

57.1 Fiberglass singles shall meet or exceed ASTM D 3018, Type I, carry UL, Class A, and wind uplift labels, have hip and ridge factory pre-cut (where applicable). Nails are to be hot galvanized, 11 or 12-gauge, barb shank, 3/8" heads, sharp pointed and of sufficient length to penetrate at least 3/4" into decking. Use six nails per shingle; staples are not permitted.

57.2 Member picks color.

57.3 Bituminous plastic cement shall meet or exceed Federal Specifications SS-C-153C, Type I, Class A, and shall be asbestos free.

57.4 On slopes 4:12 or greater, felt shall be 15 lbs. organic that meets ASTM D 226-89, Type I, and carry UL labels. On slopes 3:12 or greater but less than 4:12, install two layers of 15-lb. felt or per manufacturer's requirements for warranty.

57.5 Inspect deck after old roof removal and repair any defects.

57.6 Install base felts and valley felts.

57.7 Install shingles per manufacturer's specifications.

57.8 If roof slopes less than 4" per 12", the installation requires a double layer of 15-lb. asphalt felt prior to application of shingles. [Unit price includes one layer of underlayment. If a second layer is required, it will be treated as a separate line item. A single layer of a 30 lb. coated organic base sheet may be installed in lieu of 15 lb. felts, when required.]

57.9 In high snow areas, use two each 30 lb. asphalt felts in lieu of 15 lb. felts.

57.10 Eave metal shall be 2" x 2", 26 gauge galvanized, unpainted. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

57.11 In high wind areas, use 3" x 2", 24 gauge galvanized, unpainted eave metal.

57.12 In ice and snow country, install ice and water shield to a point two feet inside wall line at eaves, or as required by local code if it is more stringent.

57.13 Warranty is to be prorated, labor and materials, for the length of the warranty period.

58. Shingles, fiberglass, Class A, 30-year, premium laminated multilayered shingles, slopes 3:12 or greater.

58.1 Fiberglass singles shall meet or exceed ASTM D 3018, Type I, carry UL, Class A, and wind uplift labels, have hip and ridge factory pre-cut (where applicable). Nails are to be hot galvanized, 11 or 12-gauge, barb shank, 3/8" heads, sharp pointed and of sufficient length to penetrate at least 3/4" into decking. Use six nails per single; staples are not permitted.

58.2 Member picks color.

58.3 Bituminous plastic cement shall meet or exceed Federal Specifications SS-C-153C, Type I, Class A, and shall be asbestos free.

58.4 On slopes of 4:12 or greater, felt shall be 15 lbs. organic that meets ASTM D 226-89, Type I and carry UL labels.

58.5 Inspect deck after old roof removal and repair any defects.

58.6 Install base felts and valley felts.

58.7 Install shingles per manufacturer's specifications.

58.8 On slopes 3:12 but less than 4:12, the installation requires a double layer of 30-lb. asphalt felt prior to application of shingles. [Unit price includes one layer of underlayment. If a second layer is required, it will be treated as a separate line item. A single layer of a coated organic base sheet may be installed in lieu of 15-lb. felt, when required.]

58.9 In high snow areas, use two each 30 lb. asphalt felts in lieu of 15 lb. felts.

58.10 Eave metal shall be 2" x 2", 26 gauge galvanized, unpainted.

58.11 In high wind areas, use 3" x 2" 24 gauge galvanized, unpainted eave metal.

58.12 In ice and snow country, install ice and water shield to a point two feet inside wall line at eaves, or as required by local code if it is more stringent.

58.13 Warranty is to be prorated, labor and materials, for the length of the warranty period.

59. Replacement of clay or concrete roof tiles.

59.1 Tile shall be of quality, finish, color, size, and shape to match existing, or as selected by the customer.

59.2 Nails for tiles and cleats shall be copper, 11-gauge, large head and long enough to penetrate 3/4" into deck.

59.3 Flashing shall be 16 oz. copper.

59.4 Mortar shall be one-part Portland cement, 4 parts sand and color matched to tile.

59.5 Plastic cement shall meet or exceed ASTM D 2822 and Federal Specification SS-C-153, Type I.

59.6 Sealant shall be silicone to meet or exceed ASTM D 1002 or ASTM D 42.

59.7 Begin installation only after verifying physical and environmental conditions are acceptable to accomplish work.

59.8 Install 40 lb. underlayment on slopes 4:12 or greater; install two 40 lb. underlayment on slopes less than 4:12 (or a 2-mil SBS modified sheet). Follow local codes for eaves, overhangs, and ice/snow conditions. In no case shall the underlayment be less that the manufacturer's specifications. Lay the felt underlayment horizontally; lap at least 4" over valley and gutter metal; turn up 6" against all abutting vertical surfaces where possible and extend without break over hips and ridges.

59.9 Nail each sheet along the edges, which will be covered by the lap of the next sheet; lap the sheet 3" at sides and 6" at ends and cement together.

59.10 Tile shall be laid in regular courses parallel with the eaves and no attempt made to stretch the courses. The courses shall be accurately spaced to finish even and parallel at the top of all level terminations.

59.11 When the slopes of the abutting roof surfaces are at the same pitch, the courses shall give a continuity of line across valleys and around hips. Valleys shall be open 6" wide between tiles. Fit the tiles closely at hips and ridges and around vent pipes, ventilators, and other projections through the roof.

59.12 Every piece of tile shall be secured by at least one fastening; Spanish tile shall have two, unless impractical. Where nailing is not possible, or to avoid nailing through sheet metal, use wire attached to nails driven above the metal line or to other permanent fastenings and set the tile in elastic cement. All tile shall be laid with an end lap of at least 3". Eave closures of pan and cover tile shall be recessed at least 1 1/2" from the lower end of the tile.

59.13 Hips and ridges shall have roll cover tile with closed hip starters and plain terminals. Field tile that verge along hips and valleys shall be cut before turning and valley tile shall have closed ends. Top fixtures shall be furnished at deck and ridge and at the lower side of abutting vertical surfaces. Gables shall have end bands; gable rakes and closed gable ends at ridge.

59.14 The lap of end bands, or cover tile on hips and ridges, of gable rakes to end bands and field tiles, and the spaces between field tiles and hip stringers shall be filled with elastic cement. A limited amount of elastic cement may be used for leveling tile and for pointing around eave closures and top fixtures.

59.15 All intersections of roofs with vertical surfaces of every kind and all openings in roof surfaces shall be flashed and counterflashed. Flashings shall turn up no less than 6" against abutting vertical surfaces where possible and shall be in as long lengths as practical. On slopes, they shall lap longitudinally not less than 3". Elsewhere the joints shall be flat-locked and soldered. Laps and locks shall be in the direction of water flow; ridges and deck molds shall be flashed over the wood stringers. Exposed bottom edges of all flashings shall be doubled under about 1/2" to straight lines.

59.16 At vertical surfaces along slopes, the flashings shall extend under the tile at least 4 1/2" with an upturned edge as high as the contour of the tile will permit. At the upper side of vertical surfaces, the flashings shall extend under the tile to the nails, with the upper edges turned back 1/2". Flashings at the lower side of vertical surface and the flashings of ridges and deck molds shall extend onto the roof tiles and top fixtures at least 4 1/2" and be bent down for stiffness.

59.17 At corners and projections through the roof, the intersecting base flashings shall be lapped or locked, and the joints sweated with solder. Base flashings at the sides, which are normal to the tile courses, shall spill onto the roofing below.

59.18 Flashings at the sills of openings, which are not counterflashed, shall extend under the sills of the frames and turn up at least 3/4" at the back edges.

59.19 Base flashings at the curbs of roof openings, which are not counterflashed, shall turn over the tops of the curbs and be fastened on the inside by locking to continuous cleats of the same metal which shall be fastened every 4" to the curbs.

59.20 At low parapets and termination when not using step flashings, use 2.5-lb. lead flashing. Peen to fit tiles; use 2.5 lead stack flashings. (need prices for each)

59.21 Summary Note: remove existing tiles, carefully to avoid breakage. Stockpile existing clay or concrete roof tiles. Install a new 40 lb. inorganic asphalt felt underlayment; make minor repairs to the existing flashings, then replace shingles in accordance with above specifications. New flashing installation will be done under a separate line item.

60. Self-adhering ice and water shield membrane for shingles, tiles, metal waterways, penetrations, valleys, ridges, edges, etc.

60.1 Use a flexible, waterproof membrane, SBS modified, reinforced with a perm rating of .05 perms (ASTM E 96). Minimum weight, 31 lbs./100 s/f and minimum break strength, 130 lbf/in.

60.2 Sheet may be mechanically attached, set in adhesive, or have a peel-off backing.

60.3 Materials used must be acceptable to the manufacturer providing the warranty.

61. Roofing and Roof Restoration

62. Remove built-up roof, multi-ply with aggregate, non-asbestos, one inch thick or less.

62.1 Remove existing roofing down to roof deck or insulation.

62.2 Daily remove all debris from job site and dispose of in an approved landfill.

62.3 Be sure all debris is removed from deck and in any area litter might settle.

62.4 All demolition work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations.

62.5 If applicable, remove all fasteners from decking.

62.6 Spud embedded aggregate.

62.7 Using roofing spades, Maddox, or other mechanical device, remove embedded gravel from roof membrane.

62.8 Sweep loose aggregate from roof membrane.

62.9 Remove all loose gravel from roof membrane by power broom and dispose of collection in an approved dump, or as directed by owner.

62.10 Wet vacuum loose aggregate from roof membrane; prime substrate.

62.11 Using mechanical wet vacuum, remove all loose rock and debris from roof membrane. 62.12 Prime substrate: clean roof or substrate removing all dirt and debris prior to priming. 62.13 Prime using asphaltic primer at the rate of one gallon to 100-150 square feet; allow to dry.

63. Remove single-ply roof: ballast, and membrane only.

63.1 Remove existing ballast from surface or roof membrane using manual labor, roof vac or mechanical means.

63.2 Do not pile ballast in piles that would exceed load limit on total roof system.

63.3 All ballast to be removed by use of closed chute or mechanically. Do not throw from roof into truck or dumpster.

63.4 Cut single-ply membrane into pieces small enough so they can safely be removed.

63.5 Dispose of single-ply membrane in approved dumpsite.

63.6 Prime contractor is responsible to determine local regulations for disposal of roof materials.

63.7 Do not remove more membrane than can be replaced or dried in daily, especially in monsoon season.

64. Remove single-ply roof, membrane partially or fully adhered.

64.1 Cut single-ply membrane into pieces that are no larger than can safely be removed.

64.2 Dispose of membrane in approved dumpsite.

64.3 Prime contractor is responsible to determine local regulations for disposal of roof materials.

64.4 Do not remove more membrane than can be replaced or dried in daily.

65. Remove single-ply roof, membrane mechanically attached.

65.1 Cut single-ply membrane into pieces that are no larger than can safely be removed.

65.2 Using screw gun or drill motor, remove fasteners. Dispose of leftovers in approved dumpsite.

65.3 Prime contractor is responsible to determine local regulations for disposal of roof materials.

65.4 Do not remove more membrane than can be replaced or dried in daily.

66. Remove copper sheet roofing.

66.1 Use 15 lb. building paper, FS HH-R-595-B, Type 15A, Style B, ASTM 226-77, unperforated. Nails to be hot dipped, galvanized, 11 or 12-gauge, smooth shank, 1" square metal heads, at least 1" long for dry in.

66.2 Remove specified roofing using the finest equipment and tools for the job. Remove and dispose of all felts, flashings, battens, and counterflashing, as required.

66.3 Barricade and protect the property (to avoid lawsuits from unhappy parents or teachers).

66.4 All work, including use of building paper, to be coordinated with the owner's representative.

66.5 All demolition work and disposal of debris must comply with most current OSHA, NRCA, EPA, and local building codes and regulations; fall protection as required.

67. Base sheet, 3-ply fiberglass, Type IV (or appropriate Type) asphalt (17-year roof).

67.1 Water-based asphalt primer that meets ASTM D 3960-87.

67.2 Asphalt, Type IV (or appropriate Type) steep to meet UL, Class A, ASTM D 312-84.

67.3 Fiberglass base sheet, Type G-2, ASTM D 4601-86, high performance, weight, 33 lbf/100 s/f, tensile break strength 90 lbs./lbf in MD, 70 lbs./lbf in XD.

67.4 Fiberglass ply sheet, Type IV, ASTM D 2178.

67.5 Prime exiting surface with primer specified at a rate of 150-200 square feet per gallon, when required (prime is a separate line item).

67.6 Continuously mop base sheet and three plies of specified fiberglass ply sheets with interply asphalt at a rate of 25 lbs. per square per ply. Felts to be installed according to manufacturer's specifications.

67.7 Top surfacing as specified elsewhere.

68. Base sheet, 4-plies fiberglass, mechanically attached (17-year roof).

68.1 Fiberglass base sheet, Type G-2 to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM; fiberglass plies sheets, Type IV.

68.2 Mechanical fasteners for wood decks, 1" ringed shank nails with 1" capped head as made by Maze or Simplex; for wood fiber decks, Olympic GTL fasteners or approved equal; light weight deck, Olympic base ply fastener, Olympic base ply fastener, Zonolite base ply fastener or approved equal.

68.3 Starting at low point, install specified base sheet to deck using approved fasteners in accordance with FM I-90 wind uplift requirements.

68.4 Regularly mop four plies of specified fiberglass ply sheets with interply asphalt applied at the rate of 25 lbs. per square per ply, following manufacturer's instruction.

68.5 Top surfacing as specified elsewhere.

69. Fiberglass cap finishing membrane

69.1 Install over hot-applied multi-ply BUR assembly in Type IV (or appropriate Type) asphalt.

69.2 Apply as per manufacturer's instruction.

70. Base sheet with 2 plies, fiberglass felts, Type IV asphalt (or appropriate type).

70.1 Materials include primer; fiberglass base sheet, Type G-2, to meet ASTM D 4601-86, high performance, weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in. in XM; Type VI fiberglass felts that meet or exceed ASTM D 2178-88, Type VI; asphalt Type IV steep (or appropriate type), UL, Class A, ASTM D-312-84.

70.2 Prepare substrate as required by prime contractor.

70.3 Continuously mop base sheet and plies of fiberglass base sheet.

70.4 Plies are to be adhered with approved asphalt at the rate of 25 lbs. per square per ply.

70.5 All felts are to be broomed when applied.

70.6 Fishmouths, voids, wrinkles and other disfigurements will not be accepted.

70.7 Extend all plies 1" or 2" above cant and seal.

70.8 Prime contractor must approve final roofing system.

70.9 Final system must carry UL, Class A, and FM I-90 approvals and insulation attachment patterns when insulation has been used.

70.10 Top surfacing as specified elsewhere.

71. Base sheet with 3 plies, fiberglass felts, Type IV asphalt (or appropriate Type).

71.1 Materials include primer; fiberglass base sheet, Type G-2, to meet ASTM D 4601-86, high performance, weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM; Type VI fiberglass felts that meet or exceed ASTM D 2178-88, Type VI; asphalt Type IV steep (or appropriate Type), UL, Class A, ASTM D-312-84.

71.2 Prepare substrate as required by prime contractor.

71.3 Continuously mop base sheet and plies of fiberglass ply sheets.

71.4 Plies are to be adhered with approved asphalt at the rate of 25 lbs. per square per ply.

71.5 All felts are to be broomed when applied.

71.6 Fishmouths, voids, wrinkles and crinkles will not be accepted.

71.7 Extend all plies 1" above cant and seal.

71.8 Prime contractor must approve final roofing system.

71.9 Final system must carry UL, Class A, and FM I-90 approvals and insulation attachment patterns when insulation has been used.

71.10 Top surfacing as specified elsewhere.

72. Base sheet mechanically attached with 4 plies, Type VI fiberglass felts, Type IV (or appropriate Type) asphalt.

72.1 Materials include primer; fiberglass base sheet, Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in. in XM; Type VI fiberglass felts that meet or exceed ASTM D 2178-88; UL listed fiberglass.

72.2 Prepare substrate as required by prime contractor.

72.3 Mechanical fasteners for wood decks, 1" ringed shank nails with 1" capped head as made by Maze or Simplex; for wood fiber decks, Olympic GTL fasteners or approved equal; lightweight deck, Olympic base ply fastener, Olympic base ply fastener, Zonolite base ply fastener or approved equal. (add necessary price lines)

72.4 Starting at low point, install specified base sheet to deck using approved fasteners in accordance with FM I-90 wind uplift requirements.

72.5 Regularly mop four plies of specified fiberglass ply sheets with interply asphalt applied at the rate of 25 lbs. per square per ply, following manufacturer's instruction.

72.6 Top surfacing as specified elsewhere.

72.7 Final system must carry UL, Class A, and FM I-90 approvals and attachment patterns for base sheet.

73. Nailed base sheet, 3 plies Type VI fiberglass felts, fiberglass cap, Type IV (or appropriate Type) asphalt.

73.1 Materials include fiberglass base sheet, Type G-2, to meet ASTM D 4601-86, high performance, weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in. in XM; ply sheet, G-1, Type VI; asphalt Type IV step (or appropriate Type), UL, Class A, ASTM D-312-84.

73.2 Prepare substrate as required by prime contractor.

73.3 Nail base sheet per manufacturer's instruction.

73.4 Plies are to be adhered with approved asphalt at the rate of 25 lbs. per square per ply.

73.5 All felts are to be broomed when applied.

73.6 Fishmouths, voids, wrinkles and puckers will not be accepted.

73.7 Extend all plies 1" above cant and seal.

73.8 Prime contractor must approve final roofing system.

73.9 Final system must carry UL, Class A, and FM I-90 approvals.

73.10 Top surfacing as specified elsewhere.

74. Base sheet with 4 plies; 2 polyester and 2 fiberglass felts, Type IV (or appropriate Type) asphalt (20-year roof).

74.1 Materials include primer; fiberglass base sheet, Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM; polyester ply sheets, continuous filament, heat resistant, spun bonded polyester to meet Federal Test Method 101-2031 for punctures, ASTM D 737-75 for permeability, weight to be minimum 3.1 lbs./100 square feet as in ASTM D 312-84; Type VI fiberglass felts that meet or exceed ASTM D 2178-88, Type VI; asphalt Type IV steep (or appropriate Type), UL, Class A, ASTM D-312-84.

74.2 Prepare substrate as required by prime contractor.

74.3 Continuously mop base sheet and four plies (two plies of polyester and two plies of fiberglass felts). Felts are to be installed in shingle fashion.

74.4 Plies are to be adhered with approved asphalt at the rate of 25 lbs. per square per ply.

74.5 All felts are to be broomed when applied.

74.6 Fishmouths, voids, wrinkles and other ugliness will not be accepted.

74.7 Extend all plies 1"-2" above cant and seal.

74.8 If required, install glaze coat of asphalt at the rate of 15 lbs. per square.

74.9 Prime contractor must approve final roofing system, and then surface is topped. Top surfacing as specified elsewhere.

74.10 Final system must carry UL, Class A, and FM I-90 approvals and attachment patterns for base ply.

75. Built-up roof, base sheet with 3 plies polyester roofing sheet, Type IV (or appropriate Type) asphalt (20-year roof).

75.1 Materials include primer; fiberglass base sheet, Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM; polyester ply sheets, continuous filament, heat resistant, spun bonded polyester to meet Federal Test Method 101-2031 for punctures, ASTM D 737-75 for permeability, weight to be minimum 3.1 lbs./100 square feet as in ASTM D 312-84; asphalt Type IV steep (or appropriate Type), UL, Class A.

75.2 Prepare substrate as required by manufacturer.

75.3 Continuously mop base sheet and three plies of heat stabilized polyester with interply mopping of Type IV asphalt (or appropriate Type) at the rate of 25 lbs. per square per ply.

75.4 Plies are to be installed shingle fashion.

75.5 All felts are to be broomed when applied. Do not walk on felts.

75.6 Fishmouths, voids, wrinkles and other irregularities will not be accepted.

75.7 Extend all plies 1" above cant and seal edges.

75.8 If required, install glaze coat of asphalt at the rate of 15 lbs. per square.

75.9 Prime contractor must approve final roofing system, and then surface is topped. Top surfacing as specified elsewhere.

75.10 Final system must carry UL, Class A, and FM I-90 approvals and attachment patterns for base ply.

76. Built-up roof, base sheet with 3 plies Type G2 fiberglass, cold process adhesive (20 year roof).

76.1 Fiberglass base ply, 33 lb., Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM, approved by manufacturer.

76.2 Cold asphalt adhesive, UL approved, applied at 3 gallons per 100 square feet, inner ply. Must meet SCAQMD VOC limits and contain no asbestos as per ASTM D 276-87.

76.3 Top surfacing as specified elsewhere.

76.4 Install base plus three plies with cold asphalt adhesive at the rate of 3 gallons per square per ply.

76.5 Plies to extend to top of cants and nail 8" o.c.

76.6 Wood nailers to provide membrane termination. Nail per prime contractor.

76.7 Manufacturer must approve final system.

77. Built-up roof, base sheet plus 4 plies Type G2 fiberglass, cold process adhesive (30 year roof).

77.1 Fiberglass base ply, 33 lb., Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM, tensile 80 psi, approved by manufacturer.

77.2 Cold asphalt adhesive, UL approved, applied at 3 gallons per 100 square feet, inner ply. Must meet SCAQMD VOC limits and contain no asbestos as per ASTM D 276-87.

77.3 Top surfacing as specified elsewhere.

77.4 Install base plus four plies with cold asphalt adhesive at the rate of 3 gallons per square per ply.

77.5 Plies to extend to top of cants and nail 8" o.c.

77.6 Wood nailers to provide membrane termination. Nail per prime contractor.

77.7 Final system must carry UL, Class A, and FM I-90 approvals.

78. Built-up roof, base sheet, 1 ply Type VI fiberglass, 1 ply modified bitumen sheet, fire rated, Type IV asphalt (15-year roof).

78.1 Fiberglass base ply, 33 lb., Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM, approved by manufacturer.

78.2 Asphalt, Type IV steep (or appropriate Type), UL class A, ASTM D 312-84.

78.3 Type VI Fiberglass felts, ASTM D 2178-88A; modified bitumen sheet, SBS elastomers with reinforcement. Thickness: 0.160,' ASTM D 751-89. Tensile strength, 148 MD and 122 CD lbf/in., ASTM D 2523-84 at 0°F. Puncture meets FTMS 101C 2031 (modified).

78.4 Prepare substrate as required by prime contractor.

78.5 Continuously mop base sheet, ply sheet and modified bitumen sheet into specified bitumen, Type IV, ASTM D 312.

78.6 Install base sheet and roofing ply starting at low point in shingle fashion with asphalt at rate of 25 lbs. per square per ply.

78.7 Broom felts with broom.

78.8 Install modified bitumen sheet in hot asphalt at a rate of 23 lbs. per 100 square feet. Roll edge to ensure positive bond. Broom out air pockets and voids at application; end lap 12" and staggered 3' minimum. Head lap 4".

78.9 Top surface to be granule unless noted by line item on work order.

78.10 Final system must carry UL, Class A, and FM I-90 approval

79. Built-up roof, base sheet, 2 ply polyester roofing sheet, 1 ply modified bitumen sheet, fire rated, Type IV asphalt (or appropriate Type), (20-year roof).

79.1 Fiberglass base ply, 33 lb., Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM, approved by manufacturer.

79.2 Asphalt, Type IV steep (or appropriate Type), UL class A, ASTM D 312-84; Polyester ply sheet, continuous filament, heat resistant, spun bonded polyester, to meet Federal Test Method 101C-2031 for punctures, ASTM D 737-75 for permeability. Weight to be minimum 3.1 lb./in MD-240 lbf/in. XM ASTM D 2523-84 puncture 101C-2031 (modified).

79.3 Modified bitumen sheet, SBS elastomers with reinforcement. Thickness: 0.160', ASTM D 751-89; Tensile strength, 148 MD and 122 CD lbf/in., ASTM D 2523-84 at 0°F. Puncture meets FTMS 101C 2031 (modified).

79.4 Prepare substrate as required by prime contractor.

79.5 Continuously mop base sheet, ply sheet and modified bitumen sheet into specified bitumen, Type IV, ASTM D 312.

79.6 Install base sheet and roofing ply starting at low point in shingle fashion with asphalt at rate of 25 lbs. per square per ply.

79.7 Install ply sheets in continuous mopping of asphalt. Broom plies as applied and be sure ply has total adhesion and bleed through.

79.8 Install modified bitumen sheet in hot asphalt at a rate of 23 lbs. per 100 square feet. Roll edge to ensure positive bond. Broom out air pockets and voids at application; end lap 12" and staggered 3' minimum. Head lap 4".

79.9 Extend plies to top of cants and seal. Fishmouths, voids, wrinkles and other irregularities will not be accepted.

79.10 Top surface to be granules unless noted by line item on work order. 9.4.18.11 Final roofing system must carry UL, Class A, and FM I-90 approvals.

80. Built-up roof, base sheet, G-2, 33 lb., mechanically attached.

80.1 Fiberglass base ply, 33 lb., Type G-2, ASTM D 4601-86 average tensile, 80 psi, approved by manufacturer.

80.2 Nail to substrate to FM I-90 design standards.

81. Built-up roof, base sheet, G-2, 33 lb., Type IV asphalt.

81.1 Fiberglass base ply, 33 lb., Type G-2, ASTM D 4601-86 average tensile, 80 psi, approved by manufacturer.

81.2 Apply asphalt into uniform and continuous mopping at a rate of 25-lbs./100 s/f.

82. Built-up roof, premium asphalt, added cost per ply per square foot.

82.1 Premium IV asphalt, ASTM D 312-89, high quality steep asphalt (appropriate type), process from highly monitored asphalt flux.

82.2 Apply Premium IV asphalt where specified by work order at minimum rate of 25 lbs. per square per ply.

83. Built-up roof, modified bitumen adhesive, added cost per ply per square foot.

83.1 Modified bitumen adhesive, a polymer formulation applied as a hot melt adhesive, made of unblown asphalt, and modified with selected polymers. Must be both UL and FM approved. Elongation at 77°F, 1000%. ASTM D 412-87.

83.2 Apply modified bitumen adhesive in place of asphalt where specified in work order.

83.3 Interply rate minimum 27 lbs. per 100 square feet.

83.4 Manufacturer on each system must approve results.

84. Built-up roof, surface with cold asphaltic surfacing adhesive and gravel.

84.1 Cold asphalt adhesive, UL approved. Must meet SCAQMD VOC limits and contain no asbestos as per ASTM D 276-87. Density at 77°F, 8.2 lb./gallon, ASTM D 2196-81. Non- volatile content 75%, ASTM D 4496-81. VOC 240 q/l, ASTM D 3960-89.

84.2 Prime if required by work order or if work surface has been contaminated.

84.3 Roof gravel, size 6, ASTM 1863-86.

84.4 If in work order, prime roof surface with asphalt primer.

84.5 Apply flood coat of asphalt adhesive at 5 gallons per 100 square feet.

84.6 Broadcast roof gravel at rate of 500 lbs. per square.

84.7 Rake gravel smooth.

84.8 Completed system must have UL 790 Class A rating.

85. Built-up roof, surface with emulsion and granules.

85.1 If on work order, use primer.

85.2 Use high performance rubberized emulsion and #11 white ceramic roof granules.

85.3 Asbestos content, none. Density at 77°F 8.4 lb./gallon, ASTM D 1475-90. Residue by evaporation 50%, ASTM 2939-94. Ash content 4.0% of total sample, ASTM D 2939-92. Tensile at 77°F, minimum 45 psi, ASTM D 12-92. Elongation at 77°F, minimum 200%, ASTM D 412-92. MVT 4 g/100 square inches/24 hours, ASTM E 398-83.

85.4 Apply emulsion to roof surface at rate of 4 gallons per square.

85.5 Promptly install ceramic roof granules into emulsion at rate of 80 lbs. per square.

86. Built-up roof, surface with emulsion and aluminum coating.

86.1 If on work order, use primer.

86.2 Use high performance rubberized emulsion.

86.3 Asbestos content, none. Density at 77°F 8.4 lb./gallon, ASTM D 1475-90. Residue by evaporation 50%, ASTM 2939-94. Ash content 4.0% of total sample, ASTM D 2939-92. Tensile at 77°F, minimum 45 psi, ASTM D 12-92. Elongation at 77°F, minimum 200%, ASTM D 412-92. MVT 4 g/100 square inches/24 hours, ASTM E 398-83.

86.4 Apply emulsion to roof surface at rate of 4 gallons per 100 square feet and let cure for 30 days.

86.5 Install aluminum reflective coating to roof surface at rate of 1 gallon per 150 square feet. Two coats required. Asbestos content, none. Density at 77°F, 7.95 lbs./gallon, ASTM D 1475-90. Non-volatile matter, minimum 48%, ASTM D 1644-93. Metallic aluminum, minimum 11%, ASTM D 2824-85. VOC 478 q/l, ASTM 3460-93.

87. Built-up roof, surface with emulsion and white elastomeric coating.

87.1 Water-based asphalt primer, if required on work order.

87.2 High performance, high solids, reflective, fire retardant coating.

87.3 Prime roof, if conditions require priming. See priming line item.

87.4 Apply emulsion to roof surface at rate of .75 gallons per 100 square feet and let cure, per manufacturer's recommendation. Asbestos content, none. Density at 77°F 8.4 lb./gallon, ASTM D 1475-90. Residue by evaporation 50%, ASTM 2939-94. Ash content 4.0% of total sample, ASTM D 2939-92. Tensile at 77°F, minimum 45 psi, ASTM D 1292. Elongation at 77°F, minimum 200%, ASTM D 412-92. MVT 4 g/100 square inches/24 hours, ASTM E 398-83.

87.5 Apply white fire-retardant coating consisting of two coats at a rate of 1 gallon per 100 square feet per coat. Density at 77°F, 12.2 lbs./gallon, ASTM D 1475-90. Reflectance: Hunter at 90.0%, ASTM E 1347-90. Non-volatile content 67%, ASTM D 1644-88. VOC 155 q/l, ASTM D 3960-89.

87.6 On vertical surfaces, apply in two coats at the rate of 2 gallons per 100 square feet.

88. Built-up roof, surface with aluminum coating or paint.

88.1 If on work order, use primer.

88.2 Aluminum reflective coating. Asbestos content, none. Density at 77°F, 7.95 lbs./gallon, ASTM D 1475-90. Non-volatile matter, minimum 48%, ASTM D 1644-93. Metallic aluminum, minimum 11%, ASTM D 2824-85. VOC 478 q/l, ASTM 3460-93.

88.3 Prime roof with asphalt primer, if ordered.

88.4 Install aluminum reflective coating to roof surface at rate of 1 gallon per 150 square feet. Two coats required.

89. Built-up roofing, surface with high solids white elastomeric coating.

89.1 Water-based asphalt primer, if required on work order. All materials to be asbestos free. Mastic shall be minimum 80% solids, ASTM D 1475-85.

89.2 High performance, high solids, reflective, fire retardant coating.

89.3 Prime roof, if conditions require (see primer elsewhere).

89.4 Apply high solids elastomeric in one or two applications depending upon climatic conditions. Do not apply below 45°F. Apply in two applications of 2 gallon/100 s/f when temperature range is between 45°-70°F and one coat when temperature exceeds 70°F and relative humidity is below 70%. Density at 77°F, 6.8 lbs./gallon, ASTM D 147590. Non-volatile content, higher than 62%, ASTM D1644-88. Asbestos and VOC, none.

90. Built-up roofing repairs; fibered asphalt mastic, brush grade, with fiberglass mesh.

90.1 Asphalt mastic, reinforcement mesh, and primer. All materials shall be asbestos free. Non-volatile content 75%, ASTM D 4586-93. Density at 77°F, 10.1 lb./gallon, ASTM 147590. Adhesion to wet surface minimum 75%, ASTM D 3409-93.

90.2 Apply an 1/8" thick layer of mastic over repair area. Brush in reinforcement mesh removing all wrinkles. Apply the second layer of mastic and install second layer of mesh extending 1" past last layer in all directions.

90.3 Always install same number of plies as removed (2 minimum).

90.4 Coat repair work as on work order.

91. Built-up roofing repairs; pitch-based mastic, with fiberglass mesh.

91.1 Pitch-based mastic and reinforcement mesh. All materials shall be asbestos free. Nonvolatile content 73%, ASTM D 4022-81. Density at 77°F, 9.1 lb./gallon, ASTM 1475- 90. Adhesion to wet surface minimum 75%, ASTM D 3409-81. VOC 330 g/l, ASTM 3960- 89.

91.2 Apply an 1/8" thick layer of mastic over repair area. Brush in reinforcement mesh removing all wrinkles. Apply second layer of mastic and install second layer of mesh extending 1" past last layer in all directions.

91.3 Always install same number of plies as removed (2 minimum).

91.4 Coat repair work as on work order.

92. Built-up roofing repairs; elastomeric mastic, with fiberglass mesh.

92.1 Elastomeric mastic and reinforcement mesh. All materials shall be asbestos free. Nonvolatile content of mastic, minimum 82%, ASTM D 4586-86. Density at 77°F, 8.1 lb./gallon, ASTM D 1475-85. Tensile at 77°F, 40 psi at 100% elongation, ASTM D 41287. Elongation at 77°F, 1,000%, at –30°F, 100%, ASTM D 412-87. MVTR 0.5-1.10 g/100 inches square/24 hours, ASTM E 398-83 (88). Flexibility at –40°F, no cracking TRC 737.

92.2 Apply an 1/8" thick layer of mastic over repair area. Brush in reinforcement mesh removing all wrinkles. Apply second layer of mastic and install second layer of mesh extending 1" past last layer in all directions.

92.3 Always install same number of plies as removed (2 minimum).

92.4 Coat repair work as on work order.

93. Built-up roofing restoration, coal tar pitch roofs.

93.1 Mastics, as needed

93.2 Cold applied, penetrating tar base resaturant. All materials shall be asbestos free. Solids by weight, minimum 55%, ASTM D 2823-75 (81). Density at 77°F, 9.6 lb./gallon, ASTM D1475-85. MVTR 0.03-0.3 g/100 inches squared/24 hours, ASTM E 398-83.

93.3 Size 6, 1/2" round river rock, ASTM D 1863-86.

93.4 Remove gravel and repair defects as outlined on work order.

93.5 Apply coal tar resaturant, 8 gallons per square, as specified by manufacturer.

93.6 Material is to be spray applied unless manufacturer only specifies brushing. A mechanical pump with a minimum ratio of 11:1 is to be used for material delivery.

93.7 Warm material for ease of delivery, but must not exceed 110°F. The material will not be thinned in any manner.

93.8 Round river rock, 1/2", shall be spread evenly on the treated mat surface at the rate of 500 lbs./ square. The aggregate shall be clean and new. Crushed coral, slag or sandstone will not be acceptable.

93.9 If only a portion of roof mat is designed for restoration, then only the same size and type of aggregate will be replaced.

94. Built-up roofing restoration, odorless, coal tar pitch or asphalt roofs.

94.1 Mastics, as needed.

94.2 Cold applied, ecologically safe, odorless base resaturant. All materials shall be asbestos free. Resaturant water content 40%, ASTM D 3792-86. Density at 77°F 8.6 lb./gallon, ASTM D 1475-85. Low temperature flexibility at 45°F, no cracking or loss of adhesion TRC 715.

94.3 Size 6, 1/2" river rock, ASTM D 1863-86.

94.4 Remove gravel and repair defects as outlined on work order.

94.5 Apply resaturant, 8 gallons per square, as specified by manufacturer.

94.6 Material is to be spray applied unless manufacturer specifies brushing only. A mechanical pump with a minimum ratio of 11:1 is to be used for material delivery. 94.7 Material should be warmed for ease of delivery, but must not exceed 110°F. The material will not be thinned in any manner.

94.7 Material should be warmed for ease of delivery, but must not exceed 110°F. The material will not be thinned in any manner.

94.8 Round river rock, 1/2", shall be spread evenly on the treated mat surface at the rate of 500 lbs./ square. The aggregate shall be clean and new. Crushed coral, slag or sandstone will not be acceptable.

94.9 If only a portion of roof mat is designed for resaturation, then only the same size and type of aggregate will be replaced.

95. Single-ply roof, CSPE, 45 mils reinforced, asbestos free, mechanically fastened.

95.1 CSPE membrane, 45 mil, reinforced with high strength polyester scrim (10 x 10).

95.2 Cleaning solvent, tri-chlorethelene.

95.3 Seam adhesive contact adhesive as supplied by membrane manufacturer.

95.4 Flash adhesive, one-part elastomer.

95.5 Seam sealer, one-part white silicone as supplied by membrane manufacturer.

95.6 Flashing sheet, CSPE, 45 mil, reinforced.

95.7 Mechanical fastener as specified by membrane manufacturer.

95.8 Starting at low edge of roof, lay roofing sheet parallel to edge of roof, being careful not to fall off. Outside edge to extend below outside edge of wood nailer a minimum of 1/2".

95.9 Install mechanical fasteners and plates at top edge of sheet, as per manufacturer's instructions.

95.10 Lay next run of roofing sheet shingle fashion onto roof surface.

95.11 Each sheet to have a 6" lap minimum. Lay all laps shingle fashion to permit drainage.

95.12 Clean all laps with approved solvent.

95.13 Adhere seams and end laps with contact adhesive, as specified by manufacturer.

95.14 Roll lap with 2" steel roller to ensure positive adhesion.

95.15 Install flashing sheet in flashing adhesive to substrate as specified.

95.16 Caulk at exposed edges of flashings and field seams with silicone sealant, as specified.

96. Single-ply roof, CSPE, 60 mils reinforced, asbestos free, mechanically fastened.

96.1 CSPE membrane, 60 mil, reinforced with high strength polyester scrim (10 x 10).

96.2 Cleaning solvent, tri-chlorethelene.

96.3 Seam adhesive; use adhesive supplied by membrane manufacturer.

96.4 Flash adhesive, one-part elastomer.

96.5 Seam sealer, one-part white silicone as supplied by membrane manufacturer.

96.6 Flashing sheet, CSPE, 60 mil, reinforced.

96.7 Mechanical fastener as specified by membrane manufacturer.

96.8 Starting at low edge of roof, lay roofing sheet parallel to edge of roof, being careful not to fall off. Outside edge to extend past outside edge of wood nailer 1/2".

96.9 Install mechanical fasteners and plates at top edge of sheet, as per manufacturer's instructions.

96.10 Lay next run of roofing sheet shingle fashion onto roof surface.

96.11 Each sheet to have a 6" lap minimum. Lay all laps shingle fashion to permit drainage.

96.12 Clean all laps with approved solvent.

96.13 Adhere seams and end laps with contact adhesive, as specified by manufacturer.

96.14 Roll lap with 2" steel roller to ensure positive adhesion.

96.15 Install flashing sheet in flashing adhesive to substrate as specified.

96.16 Caulk at exposed edges of flashings and field seams with silicone sealant, as specified.

97. Single-ply roofing repairs (CSPE, PVC, and EPDM).

97.1 Materials: single-ply membrane to match existing.

97.2 Adhesive and mastics to match existing.

97.3 Sealant to match existing.

97.4 Clean repair area.

97.5 Make repairs according to work order. All work must conformto existing systems manufacturer's specifications.

98. CSPE

98.1 Materials: single-ply membrane to match existing.

98.2 Adhesive and mastics to match existing.

98.3 Sealant to match existing.

98.4 Clean repair area.

98.5 Make repairs according to work order. All work must conformto existing systems manufacturer's specifications.

99. PVC

99.1 Materials: single-ply membrane to match existing.

99.2 Adhesive and mastics to match existing.

99.3 Sealant to match existing.

99.4 Clean repair area.

99.5 Make repairs according to work order. All work must conformto existing systems manufacturer's specifications.

100. EPDM

100.1 Materials: single-ply membrane to match existing.

100.2 Adhesive and mastics to match existing.

100.3 Sealant to match existing.

100.4 Clean repair area.

100.5 Make repairs according to work order. All work must conform to existing systems manufacturer's specifications.

101. Flashing membrane, 2 ply, Type IV or Type VI fiberglass.

101.1 Type VI fiberglass felt, ASTM D 2178-86A, Class I.

101.2 Asphalt, Type IV steep (or appropriate type), ASTM D 312-84, UL labeled.

101.3 Install two plies of felts to flashing area in a continuous mopping of specified asphalt at a rate of 30 lbs. per square per ply.

101.4 Felts not to extend over 12" above roof mat and not less than 8". Ply must extend a minimum of 4" past toe of cant.

101.5 Nail 8" on center with simplex type fasteners or apply pressure bar.

102. Flashing membrane, 1 ply polyester and 1 ply modified bitumen.

102.1 Polyester heat stabilized roofing ply sheet that meets Federal Test Method 101C-2031, ASTM D 737-87, weight 3.1 lbs./100 square feet per ASTM D 3776-85.

102.2 Modified bitumen sheet, SBS elastomer with reinforcement. Thickness 0.150 “, ASTM D 751-89.

102.3 Asphalt, Type IV steep (or appropriate type), UL class A, ASTM D 312-84.

102.4 Install flashing ply as directed by manufacturer in continuous mopping of asphalt at 30 lbs. per square per ply. Not to exceed 12” height above roof, minimum height, 8” with 4” out from toe to cant.

102.5 Nail felts 8” on center with simplex type fasteners or apply pressure bar.

103. Flashing membrane, 2 ply, polyester.

103.1 Polyester heat stabilized roofing ply sheet that meets Federal Test Method 101C-2031, ASTM D 737-75.

103.2 Final surfacing listed elsewhere.

103.3 Install flashing ply as directed by manufacturer in continuous mopping of asphalt at 30 lbs. per square per ply. Not to exceed 12” height above roof, minimum height, 8” with 4” out from toe to cant. Nail 8” on center with simplex type fasteners or apply pressure bar.

104. Flashing membrane, CSPE.

104.1 Hypalon (CSPE) reinforced, 0.045 thick elastomer molded with high strength polyester scrim that meets the following ASTM standards: D 751-79, E96-80, D 471-79, D 120484, D 2136-84, and D 413-82.

104.2 Flashing adhesive, elastomeric adhesive, one part, to meet ASTM D 276-85, D 1475-85, and D 2196-81.

104.3 Heavy fibrated asphalt mastic with penetrating oils and plasticizing agents. UL approved, to meet ASTM D 276085.

104.4 Reinforced mesh (vinyl coated, woven glass scrim, weight 1.32 lb./100 square feet) per ASTM D 146-78a, tensile strength, 75 lbf.

104.5 Install elastomeric reinforced flashing membrane in a continuous application of adhesive at rate of 15 square feet per gallon.

104.6 Remove all air, wrinkles, and voids.

104.7 Flashings to extend 4” past toe of cant onto roof surface.

104.8 Strip inner roof edge of flashing sheet with reinforced mesh and asphalt mastic.

104.9 Attach top of flashing using pressure bar mechanically attached 8” on center.

105. Flashing membrane, CSPE with aluminum coating.

105.1 Hypalon (CSPE) reinforced, 0.045 thick elastomer molded with high strength polyester scrim that meets the following ASTM standards: D 751-79, E 96-80, D 471-79, D 120484, D 2136-84, and D 413-82.

105.2 Flashing adhesive, elastomeric adhesive, one part, to meet ASTM D 276-85, D 1475-85, and D 2196-81.

105.3 Heavy fibrated asphalt mastic with penetrating oils and plasticizing agents, UL approved to meet ASTM D 2760-85.

105.4 Reinforced mesh (vinyl coated, woven glass scrim, weight 1.32 lb./100 square feet) per ASTM D 146-78a, tensile strength, 75 lbf.

105.5 Install elastomeric reinforced flashing membrane in a continuous application of adhesive at rate of 15 square feet per gallon.

105.6 Remove all air, wrinkles, and voids.

105.7 Flashings will extend 4" past toe of cant onto roof surface.

105.8 Strip inner roof edge of flashing sheet with reinforced mesh and asphalt mastic.

105.9 Attach top of flashing using pressure bar mechanically attached 8" on center.

105.10 Use primer, if requested, or per manufacturer's instructions.

105.11 Install aluminum reflective coating to roof flashings at rate of 1 gallon per 130 square feet. Two coats required.

106. Polyurethane foam roofing.

106.1 Material is two component but may not use CFC's as blowing agent. Must have rating on Spray Polyurethane Foam (SPF) from UL, Class A.

106.2 Minimum density, 2.75 pcf; minimum compression strength, 40 psi; minimum allowable slope, 1/4" to 12"; minimum thickness of foam, 1" for new, 1.5" for recover; minimum coating thickness (See .12 and .13 below). Coating shall be asbestos free. Non-volatile contents 62% by weight, 70% by volume, ASTM D 1644-88 and 5201-91. Density at 77°F 6.8 lb./gallon, ASTM D 1475-90. (Must meet manufacturer's UL rated assemblies.)

106.3 Roof prepared as on work order.

106.4 Installation shall be smooth, free from ponding in excess of 1 square foot per 100 square feet, 24 hours after secession of moisture.

106.5 Without exception, surfacing shall be installed the same day as the foam. Any foam left exposed overnight shall be ripped off and reinstalled without any additional cost.

106.6 Foam will be installed according to the most rigid industry standards. (Indicate the standards you will use.)

106.7 Random sampling: if one sample per each 10,000 square feet over the entire project (minimum three samples) show an average deficiency of coating in excess of 5%, the entire area shall be recoated with an additional 15 mils, DFT (dry film thickness), at no additional cost. Should the foam itself be deficient in depth or weight in excess of 5%, it shall be removed and replaced at no additional cost.

106.8 Polyurethane Foam shall be installed over primed concrete decks and existing built-up roofs, according to the Uniform Building Code.

106.9 To recover gravel roof systems, first remove all loose rock, dirt, dead birds, and other debris. Prime the roof.

106.10 No existing roof system may contain moisture or wet insulation prior to recover.

106.11 Infrared analysis is required of all insulated recover applications prior to spraying the foam.

106.12 Minimum Dry Film Thickness: Acrylic, 40 mils, minimum fire rating, UL 790, Class A. (Must meet manufacturer's UL rated assemblies.)

106.13 Minimum Dry Film Thickness: Silicone, 22 mils, minimum fire rating, UL 790, Class A. (Must meet manufacturer's UL rated assemblies.)

106.14 No teachers, administrators, or students will be permitted inside any building during or within two hours after the application of any spray polyurethane foam chemicals, unless state laws so require.

107. Additional Polyurethane foam coating.

107.1 Acrylic/elastomeric, UL listed, Class A, 40 DFT (must have listing with foam used).

107.2 Apply, per manufacturer's instructions (see above).

107.3 No teachers, administrators, or students will be permitted inside any building during or within two hours after the application of any foam roofing materials, even if no state law so states.

108. Single-ply roof, EDPM, 45 mils reinforced, mechanically fastened.

108.1 45 mil, EDPM membrane 10" wide maximum.

108.2 Lap cleaner, as specified by membrane manufacturer.

108.3 Lap adhesive; contact adhesive by manufacturer, or tape.

108.4 Flashing sheet and mechanical fasteners.

108.5 Hypalon coating and sand, to meet all Class A ratings.

108.6 Lap primer as specified by manufacturer.

108.7 Install roofing sheet parallel to roof edge and over nailer 1/2" minimum.

108.8 Install mechanical fasteners to top edge of sheet using a pressure bar attached 8" on center.

108.9 Laps to be 6" wide minimum.

108.10 Run all sheets parallel to roof edge to ensure good drainage.

108.11 Clean all laps with lap cleaner.

108.12 Adhere laps with adhesive and let dry.

108.13 Roll in seam using firm pressure; roll adhered seam with 2" steel roller.

108.14 Install flashing sheets to substrate using flashing adhesive.

108.15 Caulk all laps with lap sealer at the rate of 22 linear feet per gallon and tool neatly.

108.16 Terminate top flashings with pressure bar attached 8" on center.

108.17 Assembly must be UL 790, Class A rated.

109. Single-ply roof, EDPM, 60 mils fully adhered.

109.1 60 mil, EDPM membrane.

109.2 Lap cleaner, as specified by membrane manufacturer.

109.3 Lap adhesive contact adhesive by manufacturer.

109.4 Flashing sheet and mechanical fasteners.

109.5 Lap primer as specified by manufacturer.

109.6 Install roofing sheet parallel to roof edge and over nailer 1/2" minimum.

109.7 Install mechanical fasteners to top edge of sheet.

109.8 Laps to be 6" wide minimum.

109.9 Run all sheets parallel to roof edge to ensure good drainage.

109.10 Clean all laps with lap cleaner.

109.11 Adhere laps with adhesive and let dry.

109.12 Roll in seam using firm pressure; roll adhered seam with 2" steel roller.

109.13 Install flashing sheets to substrate using flashing adhesive.

109.14 Caulk all laps with lap sealer at the rate of 22 linear feet per gallon and tool neatly.

109.15 Terminate top flashings with pressure bar attached 8" on center.

109.16 Assembly must be UL 790, Class A rated.

110. Built-up roof, base sheet with 3 plies trilaminate ply, cold process adhesive (25-year roof).

110.1 Fiberglass base ply, 33 lb., polyester/glass/polyester trilaminate reinforcement exceeding the requirements of ASTM D 4601-91, Type II.

110.2 Cold asphalt adhesive, UL approved, applied at 2.5 gallons per 100 square feet, inner ply. Must meet SCAQMD VOC limits and contain no asbestos as per ASTM D 276-87.

110.3 Top surfacing as specified elsewhere.

110.4 Install base and three plies with cold asphalt adhesive at the rate of 2.5 gallons per square per ply.

110.5 Plies to extend to top of cants and nail 8" o.c.

110.6 Wood nailers to provide membrane termination. Nail per manufacturer recommendation.

110.7 Manufacturer must approve final system.

111. Built-up roof, surface with premium asphalt, and gravel.

111.1 Premium III asphalt, ASTM D 312-89 high quality steep asphalt, process from highly monitored asphalt flux.

111.2 Apply Premium III asphalt where specified by work order at minimum rate of 25 lbs. per square foot.

111.3 Roof gravel, size 6, ASTM D 1863-86.

111.4 If on work order, prime roof surface with asphalt primer.

111.5 Broadcast roof gravel at a rate of 500 lbs. per square.

111.6 Rake gravel smooth.

112. Built-up roof, surface with Fire Retardant Aluminum coating or paint, single coat.

112.1 Fire rated, asphalt based, fibrated aluminum roof coating formulated with a blend of rust inhibiting oils. Is asbestos free and meets VOC requirements established by the US EPA for metallic pigmented Architectural Coatings. Exceeds the requirements of ASTM D 2824, Type III.

112.2 Smooth asphalt built-up roof surfaces and modified bitumen surfaces: Apply 2-1/2 to 3 gallons per SQ (1.0 to 1.2 L/m2) maximum.

112.3 Metal surfaces: 2 gallons per SQ (.08 L/m2). Coverage will vary based on texture and porosity of surface.

113. Modified bitumen roof, base sheet, cap sheet, cold Modified Bitumen Adhesive.

113.1 Fiberglass base ply, 33 lb., Type G-2, to meet ASTM D 4601-86, high performance weight, 33 lb. per 100 s/f, break strength 90 lbf/in. in MD and 70 lbf/in in XM, approved by manufacturer.

113.2 Cold process asphalt adhesive 2 gals/SQ (.8 L/m2) per ply.

113.3 Modified bitumen sheet, SBS elastomers with reinforcement. Thickness: 0.160,' ASTM D 751-89. Tensile strength, 148 MD and 122 CD lbf/in., ASTM D 2523-84 at 0°F. Puncture meets FTMS 101C 2031 (modified).

113.4 Install modified bitumen sheet in a uniform and continuous application of adhesive. Side laps 4" (100mm) minimum; end laps 6" (150mm) minimum. To assure complete and uniform adhesion, adhesive should exude past lap edges. Install flashings as specified.

114. Built-up roof, 3 plies fiberglass felts, Type IV Asphalt.

114.1 Ply sheet, G-1, Type VI; asphalt Type IV steep (or appropriate Type), UL, Class A, ASTM D-312-84.

114.2 Prepare substrate as required by prime contractor.

114.3 Continuously mop plies. Felts are to be installed in shingle fashion.

114.4 Plies are to be adhered with approved asphalt at the rate of 25 lbs. per square per ply.

114.5 All felts are to be broomed when applied.

114.6 Fishmouths, voids, wrinkles and other ugliness will not be accepted.

114.7 Extend all plies 1"-2" above cant and seal.

114.8 If required, install glaze coat of asphalt at the rate of 15 lbs. per square.

114.9 Prime contractor must approve final roofing system, and then surface is topped. Top surfacing as specified elsewhere.

115. Single-ply roof, 45 mils fully adhered with bonding adhesive.

115.1 45 mil white thermoplastic single ply comprised of an elastomeric tri-polymer alloy based on Elvaloy and blended with CPE and PVC. Membrane is asbestos free and exceeds the performance requirements of ASTM D 6754-02.

115.2 Apply bonding adhesive in a uniform continuous application onto approved substrate 80 to 100 sq. ft./gal (2.0 – 2.5 m2/L).

115.3 Allow adhesive to become tacky prior to placing membrane into the adhesive. Do not allow adhesive to fully dry prior to placing membrane.

115.4 Place membrane into adhesive and broom immediately. Overlap at side laps.

115.5 3" (76mm) minimum. Overlap at end lap 2" (51mm) minimum.

115.6 Do not apply adhesive over membrane in end lap area. Seal end lap using 45 mil roof membrane (without fleece). Heat weld membrane strip over end lap. Stagger all end laps.

115.7 Heat weld seams according to manufacturer's specifications.

115.8 Provide mechanical attachment of roof membrane at roof perimeter, walls, expansion joints, and all other projections. Follow recommendations of Factory Mutual Loss Prevention Data Sheets 1-28, 1-29, and 1-49.

116. Single-ply roof, TPA Fleece Back, 45 mils fully adhered with hot asphalt.

116.1 45 mil white thermoplastic single ply comprised of an elastomeric tri-polymer alloy based on Elvaloy and blended with CPE and PVC. Membrane is asbestos free and exceeds the performance requirements of ASTM D 6754-02.

116.2 Apply asphalt Type IV steep (or appropriate Type) ASTM D-312-84 in a uniform continuous application onto approved substrate 25 lbs/SQ (1.25 kg/m2).

116.3 Place membrane into adhesive and broom immediately. Overlap at side laps.

116.4 3" (76mm) minimum. Overlap at end lap 2" (51mm) minimum.

116.5 Do not apply adhesive over membrane in end lap area. Seal end lap using 45 mil roof membrane (without fleece). Heat weld membrane strip over end lap. Stagger all end laps.

116.6 Heat weld seams according to manufacturer's specifications.

116.7 Provide mechanical attachment of roof membrane at roof perimeter, walls, expansion joints, and all other projections. Follow recommendations of Factory Mutual Loss Prevention Data Sheets 1-28, 1-29, and 1-49.

117. Single-ply roof, 45 mils mechanically attached.

117.1 45 mil white thermoplastic single ply comprised of an elastomeric tri-polymer alloy based on Elvaloy and blended with CPE and PVC. Membrane is asbestos free and exceeds the performance requirements of ASTM D 6754-02.

117.2 Start at the low point of the roof and position a half-width (39" or 991mm)

117.3 Roll roof membrane square with the roof edge. Avoid wrinkles.

117.4 Reposition when necessary.

117.5 Mechanically attach underlying sheet at the lap to the structural deck with fasteners and 2 3/8" (60mm) diameter barbed membrane plates spaced at 6" (153mm) on center (or as specified) down the entire lap with the disc centered 1 1/8" (29mm) from the sheet edge.

117.6 Overlap at side lap: 4.5" (114mm) minimum. Overlap at end lap 3" (76mm) minimum.

117.7 The minimum number of half-width rolls required at the perimeter is 2. Determine the perimeter width as described in Section 2.2 of Factory Mutual Loss Prevention Data Sheet 1- 28.

117.8 Install the required number of half-width perimeter rolls along the roof edges both parallel and perpendicular to the roll direction in the field of the roof. Overlap perimeter sheets in the corner areas with perimeter fasteners rows installed through both membranes in both directions. Install a minimum 6-inch (150mm) wide cover strip centered over the fastener rows.

118. Base sheet mechanically attached with 3 plies fiberglass felts, Type 1 - Coal Tar Pitch.

118.1 Fiberglass base ply, 33 lb., Type G-2, ASTM D 4601-86 average tensile, 80 psi, approved by manufacturer.

118.2 Nail base sheet per manufacturer's instruction.

118.3 Type I low slope coal tar pitch, ASTM D 450-96.

118.4 Type VI fiberglass felt, ASTM D 2178-86A, Class I.

118.5 Apply the specified roofing plies at an interply coverage rate of 25 lb/100 ft2 (1.2 kg/m2).

118.6 Surfacing Options: Apply tar over roof surface at 70 lb/100 ft2 (3.4 kg/m2) +/- 20%. Immediately broadcast 440 lb/100 ft2 (19.5 kg/m2) of new, clean gravel or 300 lb/100 ft2 (14.6 kg/m2) of slag into adhesive. Aggregate shall conform to ASTM D 186393, size 6 or 67. A light colored aggregate must be used.

119. Base sheet mechanically attached with 3 plies Organic felts, Type 1 - Coal Tar Pitch.

119.1 Nail base sheet per manufacturer's instructions.

119.2 Type I low slope coal tar pitch, ASTM D 450-96.

119.3 #30 Organic felts, ASTM D226-89.

119.4 Apply the specified roofing plies at an interply coverage rate of 25 lb/100 ft2 (1.2 kg/m2).

119.5 Surfacing Options: Apply tar over roof surface at 70 lb/100 ft2 (3.4 kg/m2) +/- 20%. Immediately broadcast 440 lb/100 ft2 (19.5 kg/m2) of new, clean gravel or 300 lb/100 ft2 (14.6 kg/m2) of slag into adhesive. Aggregate shall conform to ASTM D 186393, size 6 or 67. A light colored aggregate must be used.

120. Built-up roof, 4 plies Fiberglass felts, Type 1 Coal Tar Pitch.

120.1 Type I low slope coal tar pitch, ASTM D 450-96.

120.2 Type VI fiberglass felt, ASTM D 2178-86A, Class I.

120.3 Apply the specified roofing plies at an interply coverage rate of 25 lb/100 ft2 (1.2 kg/m2).

120.4 Surfacing Options: Apply tar over roof surface at 70 lb/100 ft2 (3.4 kg/m2) +/- 20%. Immediately broadcast 440 lb/100 ft2 (19.5 kg/m2) of new, clean gravel or 300 lb/100 ft2 (14.6 g/m2) of slag into adhesive. Aggregate shall conform to ASTM D 186393, size 6 or 67. A light colored aggregate must be used.

121. Built-up roof, 4 plies Organic felts, Type 1 Coal Tar Pitch.

121.1 Type I low slope coal tar pitch, ASTM D 450-96.

121.2 #30 Organic felts, ASTM D226-89.

121.3 Apply the specified roofing plies at an interply coverage rate of 25 lb/100 ft2 (1.2kg/m2).

121.4 Surfacing Options: Apply tar over roof surface at 70 lb/100 ft2 (3.4 kg/m2) +/- 20%. Immediately broadcast 440 lb/100 ft2 (19.5 kg/m2) of new, clean gravel or 300 lb/100 ft2 (14.6kg/m2) of slag into adhesive. Aggregate shall conform to ASTM D 186393, size 6 or 67. A light colored aggregate must be used.

122. Built-up roof, surface with hot Coal Tar Pitch and Gravel.

122.1 Type I low slope coal tar pitch, ASTM D 450-96.

122.2 Surfacing Options: Apply tar over roof surface at 70 lb/100 ft2 (3.4 kg/m2) +/- 20%. Immediately broadcast 440 lb/100 ft2 (19.5 kg/m2) of new, clean gravel or 300 lb/100 ft2 (14.6 kg/m2) of slag into adhesive. Aggregate shall conform to ASTM D 186393, size 6 or 67. A light colored aggregate must be used.

123. Single-ply repairs using 2 coat polyurethane, elastomeric coating system.

123.1 Fire resistant two coat, polyurethane, elastomeric coating system.

123.2 The system consists of a single component, moisture cure, high performance, aliphatic urethane finish coat.

123.3 Base coat coverage: 1 ½ gal/SQ (0.6 l/m2) minimum.

123.4 Finish coat coverage: 1 gal/SQ (0.4 l/m2) minimum.

124. Single-ply repairs at laps or defects using 2 coats elastomeric coating system with reinforcement.

124.1 Fire resistant two coat, polyurethane, elastomeric coating system.

124.2 The system consists of a single component, moisture cure, high performance, aliphatic urethane finish coat.

124.3 Seam repair: 3.0 gal/SQ (1.2 l/m2) minimum.

124.4 150 lf/gal (12 linear meters/l).

125. Single ply roof, TPA fleece back, 60 mils fully adhered with hot asphalt.

125.1 60 mil white thermoplastic single ply comprised of an elastomeric tri-polymer alloy based on Elvaloy and blended with CPE and PVC. Membrane is asbestos free and exceeds the performance requirements of ASTM D 6754-02.

125.2 Apply asphalt Type IV steep (or appropriate Type) ASTM D-312-84 in a uniform continuous application onto approved substrate 25 lbs/SQ (1.25 kg/m2).

125.3 Place membrane into adhesive and broom immediately. Overlap at side laps.

125.4 3" (76mm) minimum. Overlap at end lap 2" (51mm) minimum.

125.5 Do not apply adhesive over membrane in end lap area. Seal end lap using 45 mil roof membrane (without fleece). Heat weld membrane strip over end lap. Stagger all end laps.

125.6 Heat weld seams according to manufacturer's specifications.

125.7 Provide mechanical attachment of roof membrane at roof perimeter, walls, expansion joints, and all other projections. Follow recommendations of Factory Mutual Loss Prevention Data Sheets 1-28, 1-29, and 1-49.

126. Single-ply roof 60 mils fully adhered with bonding adhesive.

126.1 60 mil white thermoplastic single ply comprised of an elastomeric tri-polymer alloy based on Elvaloy and blended with CPE and PVC. Membrane is asbestos free and exceeds the performance requirements of ASTM D 6754-02.

126.2 Apply bonding adhesive in a uniform continuous application onto approved substrate 80 to 100 sq. ft./gal (2.0 – 2.5 m2/L).

126.3 Allow adhesive to become tacky prior to placing membrane into the adhesive. Do not allow adhesive to fully dry prior to placing membrane.

126.4 Place membrane into adhesive and broom immediately. Overlap at side laps.

126.5 3" (76mm) minimum. Overlap at end lap 2" (51mm) minimum.

126.6 Do not apply adhesive over membrane in end lap area. Seal end lap using 45 mil roof membrane (without fleece). Heat weld membrane strip over end lap. Stagger all end laps.

126.7 Heat weld seams according to manufacturer's specifications.

126.8 Provide mechanical attachment of roof membrane at roof perimeter, walls, expansion joints, and all other projections. Follow recommendations of Factory Mutual Loss Prevention Data Sheets 1-28, 1-29, and 1-49.

127 Built-up roof, 1 ply Trilaminate, 1 ply Modified Bitumen Sheet, fire rated.

127.1 Polyester/glass/polyester trilaminate reinforcement coated with waterproofing asphalt which exceeds the requirements of ASTM D 4601-98, Type II.

127.2 Modified bitumen sheet, SBS elastomers with reinforcement. Thickness: 0.160,' ASTM D 751-89; Tensile strength, 148 MD and 122 CD lbf/in., ASTM D 2523-84 at 0°F. Puncture meets FTMS 101C 2031 (modified).

128. Masonry

129. Brick, remove and reset, 1 to 50 square feet.

129.1 Brick must match existing in color and size. Must conform to ASTM C 216, grade MW, Type FBX. Common brick should meet ASTM C 62-75A-SW.

129.2 Type I Portland cement, ASTM C 150 or Type IA, ASTM C 150.

129.3 Masonry cement, ASTM C 91.

129.4 Hydrated lime, Type S, ASTM C 207.

129.5 Water must be clean, potable, and wet.

129.6 Admixture shall be integral treatment to reduce water content and shrinkage.

129.7 Fine aggregate, clean natural sand conforming to ASTM C 144.

129.8 Mortar mix shall be 1/2/8 mix made from specified materials.

129.9 Prime contractor provides material, labor, and equipment to perform work.

129.10 Using chisels, grinders, and hand tools, remove brick and/or joint.

129.11 Clean all mortar from repair area.

129.12 Mortar mix shall be 1/2/8 made from above materials using a minimum amount of water to make a workable mix.

129.13 All units shall be laid with properly mortared vertical and horizontal joints. Units will not be moved or shifted once put in place. All joints to be worked full of mortar.

129.14 Joints to match existing, approximately 3/8", neatly concave and tooled.

129.15 Work shall be cleaned free of loose mortar.

129.16 Masonry work shall be laid up in a running bond with reinforcement every 16" vertical or as specified on approved work order.

130. Brick, remove and reset, over 50 square feet.

130.1 Brick must match existing in color and size. Must conform to ASTM C 216, grade MW, Type FBX. Common brick should meet ASTM C 62-75A-SW.

130.2 Type I Portland cement, ASTM C 150 or Type IA, ASTM C 150.

130.3 Masonry cement, ASTM C 91.

130.4 Hydrated lime, Type S, ASTM C 207.

130.5 Water should be clean, potable and mountain fresh.

130.6 Admixture shall be integral treatment to reduce water content and shrinkage.

130.7 Fine aggregate, clean natural sand conforming to ASTM C 144.

130.8 Mortar mix shall be 1/2/8 mix made from specified materials.

130.9 Prime contractor provides material, labor, and equipment to perform work.

130.10 Using chisels, grinders, and hand tools, remove brick and/or joint.

130.11 Clean all mortar from repair area.

130.12 Mortar mix shall be 1/2/8 made from above materials using a minimum amount of water to make a workable mix.

130.13 All units shall be laid with properly mortared vertical and horizontal joints. Units will not be moved or shifted once put in place. All joints to be worked full with mortar.

130.14 Joints to match existing, approximately 3/8", neatly concave and tooled.

130.15 Work shall be cleaned free of loose mortar.

130.16 Masonry work shall be laid up in a running bond with reinforcement every 16" vertical or as specified on approved work order.

131. Block, remove and reset.

131.1 Block must match existing in color and size. Must conform to ASTM C 216, grade MW, Type FBX. Block should meet ASTM C 62-75A-SW.

131.2 Type I Portland cement, ASTM C 150 or Type IA, ASTM C 150.

131.3 Masonry cement, ASTM C 91.

131.4 Hydrated lime, Type S, ASTM C 207.

131.5 Water, clean, potable. Bottled water may be used.

131.6 Admixture shall be integral treatment to reduce water content and shrinkage.

131.7 Fine aggregate, clean natural sand conforming to ASTM C 144.

131.8 Mortar mix shall be 1/2/8 mix made from specified materials.

131.9 Prime contractor provides material, labor, and equipment to perform work.

131.10 Using chisels, grinders, and hand tools, remove brick and/or joint.

131.11 Clean all mortar from repair area.

131.12 All units shall be laid with properly mortared vertical and horizontal joints. Units will not be moved or shifted once put in place. All joints to be worked full with mortar.

131.13 Joints to match existing, approximately 3/8", neatly concave and tooled.

131.14 Work shall be cleaned free of loose mortar.

131.15 Masonry work shall be laid up in a running bond with reinforcement every 16" vertical or as specified on approved work order.

131.16 All must comply with most current OSHA, NRCA, EPA, and local building codes and regulations; fall protection as required.

132. Coping stones, remove and reset.

132.1 Coping stones must match existing in color and size.

132.2 Type I Portland cement, ASTM C 150.

132.3 Masonry cement, ASTM C 91.

132.4 Hydrated lime, Type S, ASTM C 207.

132.5 Water, clean, potable, and wet.

132.6 Admixture shall be integral treatment to reduce water content and shrinkage.

132.7 Fine aggregate, clean natural sand conforming to ASTM C 144.

132.8 Mortar mix shall be 1/2/8 mix made from specified materials.

132.9 Prime contractor provides material, labor, and equipment to perform work.

132.10 Carefully remove coping stones. Remove all mortar and residue from parapet wall.

132.11 Mortar mix shall be 1/2/8 made from above materials using a minimum amount of water to make a workable mix.

132.12 Apply mortar mix to top of parapet and do not contaminate face of the building.

132.13 Set cleaned coping stones in place leaving 3/8" joint between stones.

132.14 Waterproof joints and stones as specified on approved work order.

132.15 All work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations; fall protection as required.

133. Brick, block or coping removal.

133.1 Remove brick, block, or coping.

133.2 Use power or hand tools to remove units as required without damage to remaining masonry units.

133.3 Finish any remaining mortar and masonry units to match remaining and ensure watertight integrity of surrounding work area.

133.4 Use appropriate trades as local law requires.

133.5 New work shall be completed in neat and professional manner. Joints shall match surrounding shapes and styles.

133.6 Waterproof as specified elsewhere, as required.

133.7 All work must comply with most current OSHA, NRCA, EPA, and local building codes and regulations; fall protection as required.

134. Brick, block and brick exterior wall maintenance, repair and application of protective coatings.

134.1 Classification of building heights.

134.2 High rise is defined as a building with six or more floors.

134.3 Low rise is defined as a building with five or less floors.

135. Selective Demolition of Concrete Block Masonry Units (CMU) with perimeter saw cutting-swingstage 4", 6" and 8" block (high-rise).

135.1 Provide sidewalk protection below as required by local jurisdiction.

135.2 Swingstage set up and safety requirements as per local jurisdiction and OSHA requirements.

135.3 Rake out loose mortar around masonry unit to be removed.

135.4 Saw cut mortar joint around masonry unit a minimum of 1" deep using handheld saws with a dust suction attachment.

135.5 Cut out full units from joint to joint and in a manner to permit replacement with full size units without damaging surrounding masonry.

135.6 Support and protect remaining masonry that surrounds removal area.

135.7 Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

135.8 Dispose of demolished material in a legal manner.

136. Selective Demolition of Brick Masonry Units with perimeter saw cutting - swingstage one, two, and three wythe (high-rise).

136.1 Provide Sidewalk protection below as required by local jurisdiction.

136.2 Swingstage set up and safety requirements as per local jurisdiction and OSHA requirements.

136.3 Rake out loose mortar around brick masonry unit to be removed.

136.4 Sawcut mortar joint around brick masonry unit a minimum of 1" deep using handheld saws with a dust suction attachment.

136.5 Cut out full units from joint to joint and in a manner to permit replacement with full size units without damaging surrounding masonry.

136.6 Support and protect remaining brick masonry that surrounds removal area.

136.7 Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

136.8 Dispose of demolished material in a legal manner.

137. Selective Demolition of Brick Masonry Units with perimeter saw cutting - scaffolding one, two and three wythe (low-rise).

137.1 Provide sidewalk protection below as required by local jurisdiction.

137.2 Scaffolding set up and safety requirements as per local jurisdiction and OSHA requirements.

137.3 Rake out loose mortar around brick masonry unit to be removed.

137.4 Sawcut mortar joint around brick masonry unit a minimum of 1" deep using handheld saws with a dust suction attachment.

137.5 Cut out full units from joint to joint and in a manner to permit replacement with full size units without damaging surrounding masonry.

137.6 Support and protect remaining brick masonry that surrounds removal area.

137.7 Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

137.8 Dispose of demolished material in a legal manner.

138. Selective Demolition of Mortar Joint with Perimeter Sawcutting – Swingstage (high-rise)

138.1 Set up swingstage as per local jurisdiction and OSHA requirements.

138.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

138.3 Provide all labor, tools and equipment required for removal of mortar.

138.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

138.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

138.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

138.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

138.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

139. Removal of existing mortar (½" wide by ¾" depth)

139.1 Set up swingstage as per local jurisdiction and OSHA requirements.

139.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

139.3 Provide all labor, tools and equipment required for removal of mortar.

139.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

139.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

139.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

139.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

139.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

140. Removal of existing mortar (¾" wide by ¾" depth)

140.1 Set up swingstage as per local jurisdiction and OSHA requirements.

140.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

140.3 Provide all labor, tools and equipment required for removal of mortar.

140.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

140.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

140.6 Remove mortar from masonry surface within raked out joints to provide reveals with squarebacks and to expose masonry for contact with pointing mortar.

140.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

140.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

141. Removal of existing mortar (½" wide by 1½" depth)

141.1 Set up swingstage as per local jurisdiction and OSHA requirements.

141.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

141.3 Provide all labor, tools and equipment required for removal of mortar.

141.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

141.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

141.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

141.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

141.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

141.9 Removal of swingstage as per local jurisdiction and OSHA requirements.

142. Removal of existing mortar (¾" wide by 1½" depth).

142.1 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

142.2 Provide all labor, tools and equipment required for removal of mortar.

142.3 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

142.4 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

142.5 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

142.6 Brush, vacuum, or flush joints to remove dirt and loose debris.

142.7 Do not spall edges of masonry units or widen joints. Replace damaged masonry units. existing mortar (¾" wide by 1½" depth)

143. Selective Demolition of Mortar Joint with Perimeter Sawcutting – Scaffolding (low-rise)

144. Removal of existing mortar (½" wide by ¾" depth)

144.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

144.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

144.3 Provide all labor, tools and equipment required for removal of mortar.

144.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

144.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

144.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

144.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

144.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

145. Removal of existing mortar (¾" wide by ¾" depth)

145.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

145.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

145.3 Provide all labor, tools and equipment required for removal of mortar.

145.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

145.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

145.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

145.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

145.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

146. Removal of existing mortar (½" wide by 1½" depth)

146.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

146.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

146.3 Provide all labor, tools and equipment required for removal of mortar.

146.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

146.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

146.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

146.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

146.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

147. Removal of existing mortar (¾" wide by 1½" depth)

147.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

147.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

147.3 Provide all labor, tools and equipment required for removal of mortar.

147.4 Rake out, cut out old mortar with a chisel and mallet from joints to the required depth.

147.5 Remove mortar to the required depth and width using power grinders, but not less than that required to expose sound, un-weathered mortar.

147.6 Remove mortar from masonry surface within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.

147.7 Brush, vacuum, or flush joints to remove dirt and loose debris.

147.8 Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

148. New Pointing Work – Swingstage (high-rise)

149. Furnish and install new mortar (½" wide by ¾" depth)

149.1 Set up swingstage as per local jurisdiction and OSHA requirements.

149.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

149.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

149.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is

formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

149.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers, with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

149.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

149.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

149.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

149.10 Do not use metal scrapers or brushes.

149.11 Do not use acidic or alkaline cleaners.

150. Furnish and install new mortar (¾" wide by ¾" depth)

150.1 Set up swingstage as per local jurisdiction and OSHA requirements.

150.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

150.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

150.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

150.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers, with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

150.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

150.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

150.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

150.10 Do not use metal scrapers or brushes.

150.11 Do not use acidic or alkaline cleaners.

151. Furnish and install new mortar (½" wide by 1 ½" depth)

151.1 Set up swingstage as per local jurisdiction and OSHA requirements.

151.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

151.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

151.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

151.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers, with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

151.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

151.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

151.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

151.10 Do not use metal scrapers or brushes.

151.11 Do not use acidic or alkaline cleaners.

152. Furnish and install new mortar (¾" wide by 1 ½" depth)

152.1 Set up swingstage as per local jurisdiction and OSHA requirements.

152.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

152.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

152.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

152.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers, with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

152.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

152.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

152.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

152.10 Do not use metal scrapers or brushes.

152.11 Do not use acidic or alkaline cleaners.

153. New Pointing Work – Scaffolding (low-rise)

154. Furnish and install new mortar (½" wide by ¾" depth)

154.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

154.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

154.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

154.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

154.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

154.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

154.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

154.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

154.10 Do not use metal scrapers or brushes.

154.11 Do not use acidic or alkaline cleaners.

155. Furnish and install new mortar (¾" wide by ¾" depth)

155.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

155.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

155.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

155.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

155.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from

face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

155.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

155.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

155.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

155.10 Do not use metal scrapers or brushes.

155.11 Do not use acidic or alkaline cleaners.

156. Furnish and install new mortar (½" wide by 1 ½" depth)

156.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

156.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

156.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

156.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

156.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

156.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

156.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

156.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

156.10 Do not use metal scrapers or brushes.

156.11 Do not use acidic or alkaline cleaners.

157. Furnish and install new mortar (¾" wide by 1 ½" depth)

157.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

157.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

157.3 Rinse masonry-joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at the time of pointing, excess water has evaporated or run off and joint surfaces are damp but free of standing water.

157.4 Apply the first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is

formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

157.5 After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers with first and second layers each filling about two-fifths of joint depth; third layer, the remaining one-fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges, slightly recess final layer from face. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

157.6 When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.

157.7 Cure mortar by maintaining in a damp condition for at least 72 hours.

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

157.9 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use stiff nylon or fiber brushes and clean water, spray applied at a low pressure.

157.10 Do not use metal scrapers or brushes.

157.11 Do not use acidic or alkaline cleaners.

158. Removal of Roof Parapets – Swingstage (high-rise)

159. Removal of 3 wythe brick parapet wall (24” high)

159.1 Set up swingstage as per local jurisdiction and OSHA requirements.

159.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

159.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

159.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

159.5 Dispose of demolished material in a legal manner.

160. Removal of 3 wythe brick parapet wall (42” high)

160.1 Set up swingstage as per local jurisdiction and OSHA requirements.

160.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

160.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

160.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

160.5 Dispose of demolished material in a legal manner.

161. Removal of 2 wythe brick parapet wall (24” high)

161.1 Set up swingstage as per local jurisdiction and OSHA requirements.

161.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

161.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

161.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

161.5 Dispose of demolished material in a legal manner.

162. Removal of 3 wythe brick parapet wall (42" high)

162.1 Set up swingstage as per local jurisdiction and OSHA requirements.

162.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

162.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

162.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

162.5 Dispose of demolished material in a legal manner.

163. Removal of Roof Parapets – Scaffolding (low-rise)

164. Removal of 3 wythe brick parapet wall (24" high)

164.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

164.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

164.3 Remove deteriorated, loose and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

164.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

164.5 Dispose of demolished material in a legal manner.

165. Removal of 3 wythe brick parapet wall (42" high)

165.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

165.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

165.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

165.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

165.5 Dispose of demolished material in a legal manner.

166. Removal of 2 wythe brick parapet wall (24" high)

166.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

166.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

166.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

166.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

166.5 Dispose of demolished material in a legal manner.

167. Removal of 3 wythe brick parapet wall (42" high)

167.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

167.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

167.3 Remove deteriorated, loose, and spalled bricks using handheld tools such as chisel and mallet. Remove solid portions of the parapet walls that are scheduled to be removed using power tools (15 lb chipping hammers).

167.4 Remove walls carefully so the portions of the wall that are to remain are not damaged. Do not spall edges of masonry units or widen joints. Replace damaged masonry units.

167.5 Dispose of demolished material in a legal manner.

168. Reconstruction of Brick Masonry Roof Parapets – Swingstage (high-rise)

169. New brick masonry parapet w/stone coping and flashings (3 wythe - 24" high)

169.1 Set up swingstages as per local jurisdiction and OSHA requirements.

169.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

169.3 Thickness: Build brick masonry construction to the full thickness shown.

169.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

169.5 Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

169.6 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

169.7 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

169.8 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

169.9 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

169.10 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

169.11 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

169.12 Use type N or S mortar.

169.13 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

169.14 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

169.15 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

169.16 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

170. New brick masonry parapet w/stone coping and flashings (3 wythe - 42" high)

170.1 Set up swingstages as per local jurisdiction and OSHA requirements.

170.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

170.3 Thickness: Build brick masonry construction to the full thickness shown.

170.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

170.5 Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

170.6 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

170.7 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

170.8 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

170.9 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

170.10 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

170.11 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

170.12 Use type N or S mortar.

170.13 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

170.14 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer

for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

170.15 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

170.16 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

171. New brick masonry parapet w/stone coping and flashings (2 wythe - 24" high)

171.1 Set up swingstages as per local jurisdiction and OSHA requirements.

171.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

171.3 Thickness: Build brick masonry construction to the full thickness shown.

171.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

171.5 Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

171.6 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

171.7 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

171.8 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

171.9 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

171.10 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

171.11 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

171.12 Use type N or S mortar.

171.13 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

171.14 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

171.15 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

171.16 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

172. New brick masonry parapet w/stone coping and flashings (2 wythe - 42” high)

172.1 Set up swingstages as per local jurisdiction and OSHA requirements.

172.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

172.3 Thickness: Build brick masonry construction to the full thickness shown.

172.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

172.5 Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

172.6 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

172.7 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

172.8 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

172.9 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

172.10 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

172.11 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

172.12 Use type N or S mortar.

172.13 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

172.14 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

172.15 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

172.16 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

173. Reconstruction of Brick Masonry Roof Parapets – Scaffolding (low-rise)

174. New brick masonry parapet w/stone coping and flashings (3 wythe - 24” high)

174.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

174.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

174.3 Thickness: Build brick masonry construction to the full thickness shown.

174.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

174.5 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

174.6 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

174.7 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and

offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

174.8 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

174.9 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

174.10 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

174.11 Use type N or S mortar.

174.12 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

174.13 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls,1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

174.14 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

174.15 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

175. New brick masonry parapet w/stone coping and flashings (3 wythe - 42” high)

175.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

175.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

175.3 Thickness: Build brick masonry construction to the full thickness shown.

175.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

175.5 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

175.6 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

175.7 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

175.8 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

175.9 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

175.10 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

175.11 Use type N or S mortar.

175.12 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

175.13 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls,1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

175.14 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

175.15 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

176. New brick masonry parapet w/stone coping and flashings (2 wythe - 24” high).

176.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

176.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

176.3 Thickness: Build brick masonry construction to the full thickness shown.

176.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry

before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

176.5 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

176.6 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

176.7 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

176.8 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

176.9 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

176.10 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

176.11 Use type N or S mortar.

176.12 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

176.13 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls,1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

176.14 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

176.15 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

177. New brick masonry parapet w/stone coping and flashings (2 wythe - 42” high)

177.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

177.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

177.3 Thickness: Build brick masonry construction to the full thickness shown.

177.4 Cut brick masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

177.5 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

177.6 Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds 30g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

177.7 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

177.8 Bond Pattern for Exposed Masonry: Lay exposed brick masonry to match the existing bond pattern.

177.9 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

177.10 Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

177.11 Use type N or S mortar.

177.12 Provide masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.

177.13 Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls,1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches. Space reinforcement not more than 8 inches o.c in parapet walls. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions .

177.14 Provide cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy- coated reinforcement when covered with less than 1-1/2 inches of material.

177.15 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide led coated copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed

flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

178. New Throughwall Flashings – Swingstage (high-rise)

179. Removal of 4 courses 1 wythe brick wall w/Temporary Shoring

179.1 Set up swingstage as per local jurisdiction and OSHA requirements.

179.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

179.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

179.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

179.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

179.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

179.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

179.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

179.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where the interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

179.10 At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper.

179.11 At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend the flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

179.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

179.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

179.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

179.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

179.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

179.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

179.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

179.19 Use rectangular plastic tubing and/or wicking material to form weep holes.

179.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

179.21 Space weep holes 24 inches o.c.

179.22 Space weep holes formed from plastic tubing 16 inches o.c.

179.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

179.24 Place cavity drainage material immediately above flashing in cavities.

179.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

180. Removal and replacement of steel lintel

180.1 Set up swingstage as per local jurisdiction and OSHA requirements.

180.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

180.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

180.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

180.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

180.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

180.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

180.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

180.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where the interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

180.10 At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper.

180.11 At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend the flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

180.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

180.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

180.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

180.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

180.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

180.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

180.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

180.19 Use rectangular plastic tubing and/or wicking material to form weep holes.

180.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

180.21 Space weep holes 24 inches o.c.

180.22 Space weep holes formed from plastic tubing 16 inches o.c.

180.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

180.24 Place cavity drainage material immediately above flashing in cavities.

180.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

181. Furnish and install new flashings (Bituthene)

181.1 Set up swingstage as per local jurisdiction and OSHA requirements.

181.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

181.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

181.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

181.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

181.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

181.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, all penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

181.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

181.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where the interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

181.10 At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper.

181.11 At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend the flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

181.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

181.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

181.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

181.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

181.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

181.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

181.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

181.19 Use rectangular plastic tubing and/or wicking material to form weep holes.

181.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

181.21 Space weep holes 24 inches o.c.

181.22 Space weep holes formed from plastic tubing 16 inches o.c.

181.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

181.24 Place cavity drainage material immediately above flashing in cavities.

181.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

182. Furnish and install new flashings (Lead coated copper)

182.1 Set up swingstage as per local jurisdiction and OSHA requirements.

182.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

182.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

182.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

182.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

182.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

182.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

182.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

182.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where the interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

182.10 At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper.

182.11 At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend the flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

182.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section “Joint Sealants" for application indicated.

182.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

182.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

182.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

182.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

182.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

182.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

182.19 Use rectangular plastic tubing and/or wicking material to form weep holes.

182.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

182.21 Space weep holes 24 inches o.c.

182.22 Space weep holes formed from plastic tubing 16 inches o.c.

182.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

182.24 Place cavity drainage material immediately above flashing in cavities.

182.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

183. Parging and waterproofing of back-up wall

183.1 Set up swingstage as per local jurisdiction and OSHA requirements.

183.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

183.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

183.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

183.5 Provide needle supports to support the exterior wythe at a minimum 2’-0” o.c.

183.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

183.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

183.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

183.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in

exposed masonry. Where the interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

183.10 At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper.

183.11 At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end. At heads and sills, extend the flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

183.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section “Joint Sealants" for application indicated.

183.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

183.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

183.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

183.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

183.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

183.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

183.19 Use rectangular plastic tubing and/or wicking material to form weep holes.

183.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

183.21 Space weep holes 24 inches o.c.

183.22 Space weep holes formed from plastic tubing 16 inches o.c.

183.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

183.24 Place cavity drainage material immediately above flashing in cavities.

183.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

184. New Throughwall Flashings – Scaffolding (low-rise)

185. Removal of 4 courses 1 wythe brick wall w/Temporary Shoring

185.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

185.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

185.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

185.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

185.5 Provide needle supports to support the exterior wythe at a minimum 2’-0” o.c.

185.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

185.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and

cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

185.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

185.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

185.10 Masonry-veneer walls extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end.

185.11 At heads and sills, extend flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

185.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

185.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

185.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing ½ inch back from outside face of wall and adhere flashing to top of metal drip edge.

185.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

185.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

185.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

185.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

185.19 Rectangular plastic tubing and/or wicking material to form weep holes.

185.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

185.21 Space weep holes 24 inches o.c.

185.22 Space weep holes formed from plastic tubing 16 inches o.c.

185.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

185.24 Place cavity drainage material immediately above flashing in cavities.

185.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

186. Removal and replacement of steel lintel

186.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

186.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

186.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

186.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting

and chipping hammers without damaging adjacent masonry.

186.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

186.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

186.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

186.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

186.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

186.10 Masonry-veneer walls extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end.

186.11 At heads and sills, extend flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

186.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

186.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

186.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

186.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

186.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

186.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

186.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

186.19 Rectangular plastic tubing and/or wicking material to form weep holes.

186.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

186.21 Space weep holes 24 inches o.c.

186.22 Space weep holes formed from plastic tubing 16 inches o.c.

186.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

186.24 Place cavity drainage material immediately above flashing in cavities.

186.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

187. Furnish and install new flashings (Bituthene)

187.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

187.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements. Z

187.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

187.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

189.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

187.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

187.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

187.8 If the backup wall is rough and full of mortar projections, remove projections and parge the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

187.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

187.10 Masonry-veneer walls extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end.

187.11 At heads and sills, extend flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

187.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

187.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

187.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

187.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

187.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

187.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

187.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

187.19 Rectangular plastic tubing and/or wicking material to form weep holes.

187.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

187.21 Space weep holes 24 inches o.c.

187.22 Space weep holes formed from plastic tubing 16 inches o.c.

187.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

187.24 Place cavity drainage material immediately above flashing in cavities.

187.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

188. Furnish and install new flashings (Lead coated copper)

188.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

188.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

188.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

188.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

188.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

188.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

188.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

188.8 If the backup wall is rough and full of mortar projections, remove projections and large the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

188.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

188.10 Masonry-veneer walls extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end.

188.11 At heads and sills, extend flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

188.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

188.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

188.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing ½ inch back from outside face of wall and adhere flashing to top of metal drip edge.

188.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

188.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

188.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

188.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

188.19 Rectangular plastic tubing and/or wicking material to form weep holes.

188.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

188.21 Space weep holes 24 inches o.c.

188.22 Space weep holes formed from plastic tubing 16 inches o.c.

188.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

188.24 Place cavity drainage material immediately above flashing in cavities.

188.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

189. Parging and waterproofing of back-up wall

189.1 Set up scaffolding as per local jurisdiction and OSHA requirements.

189.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

189.3 Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

189.4 Remove 4 courses of the exterior 1 wythe brick using handheld tools, sawcutting and chipping hammers without damaging adjacent masonry.

189.5 Provide needle supports to support the exterior wythe at a minimum 2'-0" o.c.

189.6 Remove corroded steel shelf angle and replace with new. New steel shall be hot dip galvanized.

189.7 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

189.8 If the backup wall is rough and full of mortar projections, remove projections and large the wall using approved mortar. Waterproof the back-up wall using Bituthene waterproofing sheet.

189.9 Install flashing as follows: At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of 8 inches and through inner wythe to within 1/2 inch of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately 2 inches, unless otherwise indicated.

189.10 Masonry-veneer walls extend flashing from exterior face of veneer, through veneer, up face of sheathing at least 8 inches and behind air-infiltration barrier or building paper. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at each end.

189.11 At heads and sills, extend flashing 4 inches at ends and turn flashing up not less than 2 inches to form a pan.

189.12 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.

189.13 Extend sheet metal flashing 1/2 inch beyond face of masonry at exterior and turn flashing down to form a drip.

189.14 Install metal drip edges beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal drip edge.

189.15 Install metal flashing termination beneath flashing at exterior face of wall. Stop flashing 1/2 inch back from outside face of wall and adhere flashing to top of metal flashing termination.

189.16 Cut flashing off flush with face of wall after masonry wall construction is completed.

189.17 Flashing sheet shall be Bituthene membrane or lead coated copper sheet and /or both.

189.18 Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

189.19 Rectangular plastic tubing and/or wicking material to form weep holes.

189.20 Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

189.21 Space weep holes 24 inches o.c.

189.22 Space weep holes formed from plastic tubing 16 inches o.c.

189.23 In cavities, place mortar screens or pea gravel to a height equal to height of first course, but not less than 2 inches immediately above top of flashing embedded in the wall, as masonry construction progresses, to splatter mortar droppings and to maintain drainage.

189.24 Place cavity drainage material immediately above flashing in cavities.

189.25 In cavities insulated with loose-fill insulation, cover cavity side of open weep holes with plastic insect screening before placing insulation in cavity.

190. Brick Masonry/Stone Stabilization.

191. Drilling and installation of new friction pins with mortar cap.

191.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

191.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

191.3 This procedure is only for brick walls and stones that need to be stabilized laterally and have good bearing supports.

191.4 Use one of the following products: Dur-O-Wall Friction pin or Helifix Dryfix Masonry pin.

191.5 Install pins using manufacturer's propriety insertion tools and as per manufacturer's installation directions.

191.6 Install pins every three courses of brick @ 24 inches on center. For stones, install one pin per 2 square feet.

191.7 Determine required length of pin in the field. Minimum embed into backup wall 3 inches.

191.8 Plug holes in the brick wall mortar joint and stone joints using new mortar to match existing.

192. Drilling and installation of new friction pins for limestone with mortar cap.

192.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

192.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

192.3 This procedure is only for brick walls and stones that need to be stabilized laterally and have good bearing supports.

192.4 Use one of the following products: Dur-O-Wall Friction pin or Helifix Dryfix Masonry pin.

192.5 Install pins using manufacturer's propriety insertion tools and as per manufacturer's installation directions.

192.6 Install pins every three courses of brick @ 24 inches on center. For stones, install one pin per 2 square feet.

192.7 Determine required length of pin in the field. Minimum embed into backup wall 3 inches.

192.8 Plug holes in the brick wall mortar joint and stone joints using new mortar to match existing.

193. Limestone Removal and Replacement.

194. Removal of existing deteriorated architectural limestone.

194.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

194.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

194.3 Remove cracked, deteriorated limestone by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

194.4 Furnish and install new limestone to match existing. Provide bearing supports and anchors for lateral support.

194.5 Furnish and install simulated limestone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

194.6 Repair small spalls and cracks in limestone using Jhan Mortar M70. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

195. Furnish and install new limestone replacement.

195.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

195.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

195.3 Remove cracked, deteriorated limestone by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

195.4 Furnish and install new limestone to match existing. Provide bearing supports and anchors for lateral support.

195.5 Furnish and install simulated limestone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

195.6 Repair small spalls and cracks in limestone using Jhan Mortar M70. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

196 Replacement of stone with lightweight polymer resin to match.

196.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

196.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

196.3 Remove cracked, deteriorated limestone by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

196.4 Furnish and install new limestone to match existing. Provide bearing supports and anchors for lateral support.

196.5 Furnish and install simulated limestone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

196.6 Repair small spalls and cracks in limestone using Jhan Mortar M70. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

197. Minor patching of existing stone to match.

197.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

197.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

197.3 Remove cracked, deteriorated limestone by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

197.4 Furnish and install new limestone to match existing. Provide bearing supports and anchors for lateral support.

197.5 Furnish and install simulated limestone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

197.6 Repair small spalls and cracks in limestone using Jhan Mortar M70. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

198. Terra Cotta Removal and Replacement.

199. Removal of existing deteriorated architectural Terra Cotta.

199.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

199.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

199.3 Remove cracked, deteriorated terra cotta by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

199.4 Furnish and install new terra cotta stone to match existing. Provide bearing supports and anchors for lateral support.

199.5 Furnish and install simulated terra cotta stone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

199.6 Repair small spalls and cracks in terra cotta stone using Jhan Mortar M100. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

200. Furnish and install new Terra Cotta replacement.

200.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

200.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

200.3 Remove cracked, deteriorated terra cotta by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

200.4 Furnish and install new terra cotta stone to match existing. Provide bearing supports and anchors for lateral support.

200.5 Furnish and install simulated terra cotta stone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

200.6 Repair small spalls and cracks in terra cotta stone using Jhan Mortar M100. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

201. Replacement of stone with lightweight polymer resin to match.

201.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

201.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

201.3 Remove cracked, deteriorated terra cotta by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

201.4 Furnish and install new terra cotta stone to match existing. Provide bearing supports and anchors for lateral support.

201.5 Furnish and install simulated terra cotta stone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

201.6 Repair small spalls and cracks in terra cotta stone using Jhan Mortar M100. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

202. Minor patching of existing stone to match.

202.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

202.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

202.3 Remove cracked, deteriorated terra cotta by sawcutting perimeter, using chisels and mallets, carefully so as not to damage and chip adjacent panels.

202.4 Furnish and install new terra cotta stone to match existing. Provide bearing supports and anchors for lateral support.

202.5 Furnish and install simulated terra cotta stone to match existing manufactured using polymer resins. Manufacturer: Product: Micro terra cotta; Manufacturer: Granetech; Ph: 815-899-9288.

202.6 Repair small spalls and cracks in terra cotta stone using Jhan Mortar M100. Match mortar to existing panel in color and texture. Use mortar as per manufacturer's installation instructions.

203. Roof Coping Stones.

204. Removal of existing roof coping stones (16 inches).

204.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

205.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

205.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

204.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

204.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

204.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

204.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

204.8 Apply a water repellent surface sealer or waterproof coating as specified.

205. Removal and parging of existing substrate.

205.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

205.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

205.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

205.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

205.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

205.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

205.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

205.8 Apply a water repellent surface sealer or waterproof coating as specified.

206. Furnish and install new lead coated copper flashings.

206.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

206.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

206.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

206.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

206.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

206.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

206.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

206.8 Apply a water repellent surface sealer or waterproof coating as specified.

207. Drilling and epoxy grouting stainless steel pins.

207.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

207.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

207.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

207.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

207.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

207.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

207.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

207.8 Apply a water repellent surface sealer or waterproof coating as specified.

208. Reinstallation of existing stones with cleaning.

208.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

208.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

208.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

208.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

208.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

208.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

208.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

208.8 Apply a water repellent surface sealer or waterproof coating as specified.

209. Furnish and install new coping stones.

209.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

209.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

209.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

209.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

209.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

209.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

209.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

209.8 Apply a water repellent surface sealer or waterproof coating as specified.

210. Furnish and install new sealants between coping stones.

210.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

211.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

210.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

210.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

210.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

210.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench

units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

210.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

210.8 Apply a water repellent surface sealer or waterproof coating as specified.

211. Cleaning and coating of existing stones.

211.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

211.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

211.3 Remove existing deteriorated coping stones carefully without damaging the masonry below.

211.4 Remove deteriorated mortar bed below using chisels and mallets and other handheld tools without damaging masonry and parge the top of the wall to provide an even surface for the stone.

211.5 Replace only damaged coping stones. Provide new cast stone units complying with ASTM C 1364. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364. Colors and Textures: Match existing units. Reinforce units as indicated and as required by ASTM C 1364. Use galvanized or epoxy-coated reinforcement when covered with less than 1-1/2 inches of material.

211.6 Set cast stone as indicated on drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances. Provide stainless steel anchors, a minimum of two anchors per stone. Provide 20 OZ Cheney interlocking copper cap flashing above brick masonry parapet. Drench units with clear water just before setting. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Fill dowel holes and anchor slots with mortar. Fill collar joint solid as units are set. Build concealed flashing into mortar joints as units are set. Leave head joints open in coping and other units with exposed horizontal surfaces. Keep joints clear of mortar and rake out to receive sealant. Install joint sealants at joints in the stones.

211.7 The existing coping stones are to be cleaned using power wash with mild detergent before re-installation.

211.8 Apply a water repellent surface sealer or waterproof coating as specified.

212. CMU Backup Wall Repair and Waterproofing.

213. Replacement of Deteriorated CMU Back-up.

213.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

213.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

213.3 Remove loose deteriorated CMU units using handheld tools such as chisels and mallets.

213.4 Remove excess mortar protruding from the wall and fill gaps in the joints.

213.5 Parge the surface of the wall even using mortar.

213.6 Waterproof the wall using W.R. Grace Bituthene waterproofing sheet as per manufacturer's instructions. Seal holes in the membrane sheet caused by the metal ties using mastic or other sealants approved by the membrane manufacturer.

214. Parging of CMU back-up wall.

214.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

214.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

214.3 Remove loose deteriorated CMU units using handheld tools such as chisels and mallets.

214.4 Remove excess mortar protruding from the wall and fill gaps in the joints.

214.5 Parge the surface of the wall even using mortar.

214.6 Waterproof the wall using W.R. Grace Bituthene waterproofing sheet as per manufacturer's instructions. Seal holes in the membrane sheet caused by the metal ties using mastic or other sealants approved by the membrane manufacturer.

215. Waterproofing of back-up wall.

215.1 Set up swingstage/scaffolding as per local jurisdiction and OSHA requirements.

215.2 Set up sidewalk protection below as per local jurisdiction and OSHA requirements.

215.3 Remove loose deteriorated CMU units using handheld tools such as chisels and mallets.

215.4 Remove excess mortar protruding from the wall and fill gaps in the joints.

215.5 Parge the surface of the wall even using mortar.

215.6 Waterproof the wall using W.R. Grace Bituthene waterproofing sheet as per manufacturer's instructions. Seal holes in the membrane sheet caused by the metal ties using mastic or other sealants approved by the membrane manufacturer.

216. Brick Masonry Piers.

217. Isolated repair of existing masonry piers (removal and replacement).

217.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

217.2 Remove deteriorated/cracked brick/masonry (individual units or an area) using handheld tools, chisels, and mallets without damaging adjacent masonry units.

217.3 Provide and install new brick/masonry units and mortar to match existing. Provide reinforcing ties at joints. Provide a minimum of 2 ties, if repair area is less than 2 sq.ft, and 1 tie per 1 sq. ft. area of replacement.

217.4 Provide and construct new 16"x16" brick masonry pier. The masonry units and the mortar match existing in color and texture. Provide joint reinforcement every three courses.

218. Reconstruction of isolated areas of pier.

218.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

218.2 Remove deteriorated/cracked brick/masonry (individual units or an area) using handheld tools, chisels and mallets without damaging adjacent masonry units.

218.3 Provide and install new brick/masonry units and mortar to match existing. Provide reinforcing ties at joints. Provide a minimum of 2 ties, if repair area is less than 2 sq.ft, and 1 tie per 1 sq. ft. area of replacement.

218.4 Provide and construct new 16"x16" brick masonry pier. The masonry units and the mortar match existing in color and texture. Provide joint reinforcement every three courses.

219. Construction of new masonry piers.

219.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

219.2 Remove deteriorated/cracked brick/masonry (individual units or an area) using handheld tools, chisels, and mallets without damaging adjacent masonry units.

219.3 Provide and install new brick/masonry units and mortar to match existing. Provide reinforcing ties at joints. Provide a minimum of 2 ties, if repair area is less than 2 sq.ft, and 1 tie per 1 sq. ft. area of replacement.

219.4 Provide and construct new 16”x16” brick masonry pier. The masonry units and the mortar match existing in color and texture. Provide joint reinforcement every three courses.

220. Crack Repair

221. Drill and install new stainless-steel pins.

221.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

221.2 Drill and install stainless steel 3/8” dia. threaded rods or pins or Sika propriety anchors in the mortar joints on both side of the crack. The pins shall have a minimum embedment of 2 inches into the back-up wall. Install pins every three courses or 12 inches o.c.

221.3 In solid masonry walls, grout the cracks using non-shrink grout injecting under pressure.

221.4 Remove cracked bricks and install new bricks to match existing.

222. Grouting of open cracks.

222.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

222.2 Drill and install stainless steel 3/8” dia. threaded rods or pins or Sika propriety anchors in the mortar joints on both side of the crack. The pins shall have a minimum embedment of 2 inches into the back-up wall. Install pins every three courses or 12 inches o.c.

222.3 In solid masonry walls, grout the cracks using non-shrink grout injecting under pressure.

222.4 Remove cracked bricks and install new bricks to match existing.

223. Replacement of cracked bricks.

223.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

223.2 Drill and install stainless steel 3/8” dia. threaded rods or pins or Sika propriety anchors in the mortar joints on both side of the crack. The pins shall have a minimum embedment of 2 inches into the back-up wall. Install pins every three courses or 12 inches o.c.

223.3 In solid masonry walls, grout the cracks using non-shrink grout injecting under pressure.

223.4 Remove cracked bricks and install new bricks to match existing.

224. Concrete Removal.

225. Perimeter sawcutting.

225.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

225.2 Setup swingstage/scaffolding as per OSHA and local requirements.

225.3 Sound the concrete slab, beam edge and/or other deteriorated and sound concrete surfaces using a hammer or sounding device and mark locations of concrete delaminations.

225.4 Sawcut the perimeter of the repair area ½” deep without cutting any reinforcement.

225.5 Using 15-pound chipping hammers, remove delaminated and sound concrete to expose embedded steel reinforcement. The removal shall extend to expose at least 6 inches of clean reinforcement without any corrosion. Remove concrete a minimum of ¾” below the reinforcing or to sound concrete.

226. Removal of existing concrete (2” depth).

226.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

226.2 Setup swingstage/scaffolding as per OSHA and local requirements.

226.3 Sound the concrete slab, beam edge and/or other deteriorated and sound concrete surfaces using a hammer or sounding device and mark locations of concrete delaminations.

226.4 Sawcut the perimeter of the repair area ½” deep without cutting any reinforcement.

226.5 Using 15-pound chipping hammers, remove delaminated and sound concrete to expose embedded steel reinforcement. The removal shall extend to expose at least 6 inches of clean

reinforcement without any corrosion. Remove concrete a minimum of ¾" below the reinforcing or to sound concrete.

227. Removal of existing concrete (3.5" depth).

227.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

227.2 Setup swingstage/scaffolding as per OSHA and local requirements.

227.3 Sound the concrete slab, beam edge and/or other deteriorated and sound concrete surfaces using a hammer or sounding device and mark locations of concrete delaminations.

227.4 Sawcut the perimeter of the repair area ½" deep without cutting any reinforcement.

227.5 Using 15-pound chipping hammers, remove delaminated and sound concrete to expose embedded steel reinforcement. The removal shall extend to expose at least 6 inches of clean reinforcement without any corrosion. Remove concrete a minimum of ¾" below the reinforcing or to sound concrete.

228. New Concrete and Coating.

229. Placement of new high strength patching mortar (2" depth).

229.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

229.2 Setup swingstage/scaffolding as per OSHA and local requirements.

229.3 Use "Eucocrete" by Euclid Chemical Company or approved equal.

229.4 The existing concrete must be clean and rough. The surface must be prepared using scabbler, bushhammer or scarifier which will give a surface profile of a minimum of 1/8" and expose the coarse aggregate of the concrete.

229.5 Edges should be sawcut ¼" deeper than the depth of repair and the floor should be notched at the edge of repair to provide a lock-in, reinforced edge.

229.6 Wet concrete surface and keep it damp. No ponding of water on the surface.

229.7 Apply a scrub coat of Eucocrete with SBR latex.

229.8 Mix Eucocrete as per manufacturer's instruction and place concrete and finish to the texture specified. Do not add additional water for finishing.

229.9 Wet cure area for three days. If wet cure is not possible, cure the floor with a high solids curing compound such as Super Aqua-Cure, Super Rezseal by Euclid or approved equal. In hot, windy or direct sunlight situations, re-wet the surface after the curing compound has dried and cover the area with polyethylene for a minimum of three days.

229.10 For patching vertical and overhead surfaces, use Euclid "Verticoat" or Sika SHB patching mortar. Install and cure as per manufacturer's instructions.

229.11 After 28 days of curing, clean concrete surface free of all laitance and curing compounds using power washing, grinding and/or shotblasting and install waterproof coating as per manufacturer's recommendations.

229.12 For vertical and overhead concrete surfaces, install acrylic polymer emulsion wall coating.

229.13 For horizontal traffic surfaces, use Vulkem "Traffic Membrane Light Duty" or approved equal.

230. Placement of new high strength patching mortar (3.5" depth).

230.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

230.2 Setup swingstage/scaffolding as per OSHA and local requirements.

230.3 Use "Eucocrete" by Euclid Chemical Company or approved equal.

230.4 The existing concrete must be clean and rough. The surface must be prepared using scabbler, bushhammer or scarifier which will give a surface profile of a minimum of 1/8" and expose the coarse aggregate of the concrete.

230.5 Edges should be sawcut ¼" deeper than the depth of repair and the floor should be notched at the edge of repair to provide a lock-in, reinforced edge.

230.6 Wet concrete surface and keep it damp. No ponding of water on the surface.

230.7 Apply a scrub coat of Eucocrete with SBR latex.

230.8 Mix Eucocrete as per manufacturer's instruction and place concrete and finish to the texture specified. Do not add additional water for finishing.

230.9 Wet cure area for three days. If wet cure is not possible, cure the floor with a high solids curing compound such as Super Aqua-Cure, Super Rezseal by Euclid or approved equal. In hot, windy or direct sunlight situations, re-wet the surface after the curing compound has dried and cover the area with polyethylene for a minimum of three days.

230.10 For patching vertical and overhead surfaces, use Euclid "Verticoat" or Sika SHB patching mortar. Install and cure as per manufacturer's instructions.

230.11 After 28 days of curing, clean concrete surface free of all laitance and curing compounds using power washing, grinding and/or shotblasting and install waterproof coating as per manufacturer's recommendations.

230.12 For vertical and overhead concrete surfaces, install acrylic polymer emulsion wall coating.

230.13 For horizontal traffic surfaces, use Vulkem "Traffic Membrane Light Duty" or approved equal.

231. Cleaning and coating of concrete surface.

231.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

231.2 Setup swingstage/scaffolding as per OSHA and local requirements.

231.3 Use "Eucocrete" by Euclid Chemical Company or approved equal.

231.4 The existing concrete must be clean and rough. The surface must be prepared using scabbler, bushhammer or scarifier which will give a surface profile of a minimum of 1/8" and expose the coarse aggregate of the concrete.

231.5 Edges should be sawcut ¼" deeper than the depth of repair and the floor should be notched at the edge of repair to provide a lock-in, reinforced edge.

231.6 Wet concrete surface and keep it damp. No ponding of water on the surface.

231.7 Apply a scrub coat of Eucocrete with SBR latex.

231.8 Mix Eucocrete as per manufacturer's instruction and place concrete and finish to the texture specified. Do not add additional water for finishing.

231.9 Wet cure area for three days. If wet cure is not possible, cure the floor with a high solids curing compound such as Super Aqua-Cure, Super Rezseal by Euclid or approved equal. In hot, windy or direct sunlight situations, re-wet the surface after the curing compound has dried and cover the area with polyethylene for a minimum of three days.

231.10 For patching vertical and overhead surfaces, use Euclid "Verticoat" or Sika SHB patching mortar. Install and cure as per manufacturer's instructions.

231.11 After 28 days of curing, clean concrete surface free of all laitance and curing compounds using power washing, grinding and/or shotblasting and install waterproof coating as per manufacturer's recommendations.

231.12 For vertical and overhead concrete surfaces, install acrylic polymer emulsion wall coating.

231.13 For horizontal traffic surfaces, use Vulkem "Traffic Membrane Light Duty" or approved equal.

232. Sidewalk Bridging.

232.1 Furnish and install new sidewalk bridge with lighting conforming to local ordinances and OSHA regulations.

232.2 Sidewalk bridges should be designed to carry a minimum superimposed load of 300 PSF, but not less than the load required by the local ordinances.

232.3 Sidewalk bridges shall not obstruct buildings entrances, exits, fire escapes and stairs.

232.4 Sidewalk bridges shall be designed by a Professional Engineer registered in the state where the project is located, and the drawings should be approved by the Building Dept. or local agency prior to installation.

232.5 The sidewalk bridge should be checked and maintained and provide rental and maintenance costs.

233. Temporary Roof Protection

233.1 Protect existing roof from construction damage. Spread plastic sheet and cover the roof continuously with plywood. Place dead weight evenly on the plywood, so that they are not moved by heavy winds.

234. Metal work

235. Remove standard metal decking

235.1 Before work starts, area below work must be protected and/or barricaded before deck removal begins.

235.2 Remove deteriorated decking.

235.3 Dispose of old decking in an approved dumpsite or with scrap metal buyer.

235.4 All decking must be replaced and covered daily.

236. Install metal decking. 1-1/2" deep, 20 gauge, standard profile

236.1 Steel galvanized metal deck units, ASTM A 446, Grade A; galvanizing per ASTM A 525, G60 (SDI "Design Manual for Floor Decks and Roof Decks").

236.2 Use coated self-tapping deck screws.

236.3 All welding per SWA "Structural Welding Code."

236.4 Paint must be rust inhibitive. Existing deck will be painted, where required.

236.5 Install deck units and accessories in accordance with manufacturer's recommendations and final shop drawings.

236.6 Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before being permanently fastened. Do not stretch or contract side lap interlocks.

236.7 Place deck unit in straight alignment for entire length of run of cells and with close alignment between cells at ends of abutting units.

236.8 Place deck units flat and square, secured to adjacent framing without warp or excessive deflection.

236.9 Do not place deck units on concrete supporting structure until concrete is cured and dry.

236.10 Coordinate and cooperate with structural steel erector in locating decking bundles to prevent overloading of structural members.

236.11 Fasten roof deck units to steel supporting members by not less than 1/2" diameter fusion welds or elongated welds of equal strength, spaced not more than 12" o.c. at supports, and at closer spacing where required for lateral force resistance.

236.12 Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds and methods used in correcting welding work.

236.13 Use welding washers where recommended by deck manufacturer.

236.14 Lock side laps of adjacent deck units between supports with screws on 36" centers.

236.15 Provide reinforcement at opening to match that that exists.

237. Install steel plate, two sizes.

237.1 Galvanized, 10-gauge steel; also, extra heavy-duty, 1/4th inch thick. Mechanically attached to meet local needs. Must be supported to comply with surrounding/adjacent conditions. (Gauge to match existing, as necessary.)

237.2 Angle iron or steel plate, 1/4" mechanically attached to meet local needs. Must be supported to comply with surrounding/adjacent conditions.

237.3 Cover limited openings in a deck. Steel may be used as required in horizontal or vertical conditions, decking, coverings, or framing.

238. 10-gauge standard application

239. Extra heavy-duty, 1/4th inch thick

239.1 Mechanically attached to meet local needs. Must be supported to comply with surrounding/adjacent conditions. (Gauge to match existing, as necessary.)

239.2 Angle iron or steel plate, 1/4" mechanically attached to meet local needs. Must be supported to comply with surrounding/adjacent conditions.

239.3 Cover limited openings in a deck. Steel may be used as required in horizontal or vertical conditions, decking, coverings, or framing.

240. Remove metal counterflashing.

240.1 Remove existing counterflashing.

240.2 Dispose of old counterflashing in an approved dumpsite or with scrap metal buyer.

241. Counterflashing, galvanized, 24 gauge, 6" width.

241.1 Sheet steel, ASTM 526, with 1.25 oz. per square foot galvanized coating.

241.2 Hemmed and with a 45° drip edge.

242. Counterflashing, copper, 16 oz., 6" width.

242.1 Copper, ASTM B 370-84O.

242.2 Hemmed and with a 45° drip edge.

243. Remove metal edge, gravel stop, eave strip, or coping.

243.1 Remove existing counterflashing.

243.2 Dispose of waste in an approved dumpsite or with scrap metal buyer.

244. Metal edge raised, galvanized steel fascia/eave drip; 6" face, hemmed, continuous cleat, 3" deck flange.

244.1 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating.

244.2 In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low-slope roofs. Metal fascia. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

244.3 Treated wood cant.

244.4 Approved fasteners, according to prime contractor.

244.5 Install face to roof edge. Installation to comply with fascia manufacturer's specifications.

244.6 Flash (seal) fascia as specified by manufacturer.

245. Gravel stop, galvanized steel, 24 gauge, 6" face.

245.1 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating, 24 gauge.

245.2 Solder, ASTM B 32-93, alloy grade Sn50A. Neutralize flux after soldering.

245.3 Continuous cleat, 22-gauge sheet steel with 1.25 oz. per square feet galvanized coating.

245.4 Fabricate and install gravel stop per SMACNA and NRCA standards. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

245.5 Set flashing in asphalt mastic 3” on center, staggered.

245.6 Strip flange per roofing manufacturer’s specifications.

245.7 Install butt plates between sections.

246. Remove metal gutter.

246.1 Remove existing gutter.

246.2 Dispose of old metal in an approved dumpsite or with scrap metal buyer.

247. Gutter, galvanized steel, ASTM 526, with 1.25 oz/square foot galvanized coating, 24 gauge, 5” box or ogee style, joints and end caps shall be soldered.

247.1 Install gutters where specified by work order.

247.2 Installation must conform to SMACNA manual details.

247.3 Stiffeners shall be installed 36” o.c.

247.4 Gutters shall have spacers and gutter brackets. Brackets shall be sized per manufacturer’s instruction, or 36” on center with gutter spacers spaced equally between brackets. Brackets shall be sized per Table 1-8, Architectural Sheet Metal Manual, 5th edition.

247.5 Gutter shall be fabricated from flat stock (minimum 1/16 x 1 inch of the same material as the gutter). Spacers shall be attached as shown in the Architectural Sheet Metal Manual, 5th edition, figure 1-13A.

247.6 Owner may wish to match to existing gutter style and size. In such instances, the most stringent details in the Architectural Sheet Metal Manual, 5th edition, shall be the minimum standard.

247.7 Gutter expansion joints shall be sized per table 1-7 of the Architectural Sheet Metal Manual, 5th edition. Details shown in figures 1-5 and 1-6 are the minimum standards.

248. Gutter, aluminum, .050” thick 5” box or ogee, painted, Kynar finish.

248.1 Install gutters with approved fasteners where specified by work order.

248.2 Installation must conform to most current SMACNA manual details, and NRCA and roofing manufacturer’s details.

248.3 Stiffeners shall be installed 36” o.c., as will support brackets.

249. Gutter, copper, 16 oz, half round, 5” wide.

249.1 Install pre-manufactured copper gutters with approved fasteners where specified by work order.

249.2 Installation must conform to most current SMACNA manual details, and NRCA and roofing manufacturer’s details.

249.3 Stiffeners shall be installed 36” o.c., as will support brackets.

250. Gutter, copper, 16 oz, half round, 6” wide.

250.1 Install pre-manufactured copper gutters with approved fasteners where specified by work order.

250.2 Installation must conform to most current SMACNA manual details, and NRCA and roofing manufacturer’s details.

250.3 Stiffeners shall be installed 36” o.c., as will support brackets.

251. Remove metal downspouts.

251.1 Remove existing downspouts.

251.2 Dispose of old downspouts in an approved dumpsite or with scrap metal buyer.

252. Downspouts, aluminum, .024” thick, 3” x 4”, painted, installed.

252.1 Materials must have two coats of factory applied baked-on enamel; color selected by owner.

253. Downspouts, GI, 24 gauge 3" x 4", installed.

253.1 Materials per ASTM A 526, with 1.25 oz. per square feet galvanized coating.

254. Downspouts, GI, 24 gauge, 4" round, installed.

254.1 Materials per ASTM A 526, with 1.25 oz. per square feet galvanized coating.

255. Downspouts, copper, 16 oz., 6" round, installed.

255.1 ASTM B 370-84A, to match existing spouts.

256. Downspouts, strainer.

256.1 Copper.

256.2 Galvanized steel. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

256.3 Install downspout strainer in gutter, where specified.

257. Metal flashing, apron flashing, 9" wide.

257.1 16 oz. copper per ASTM B 370-81.

257.2 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating.

257.3 Installation must conform to NRCA and roofing manufacturer's details.

258. Metal flashing, step flashing.

258.1 16 oz. copper per ASTM B 370-81.

258.2 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating.

258.3 Flashing must conform to SMACNA manual details.

259. Metal splash pan, 16 oz.

259.1 16 oz. copper per ASTM B 370-81.

259.2 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating.

259.3 Solder and flux.

259.4 Fabricate splash pans a minimum of 12" wide, 18" long, with 1" sides hemmed 1/2" on 3 sides.

259.5 Installation must conform to SMACNA manual details.

260. Metal trim, aluminum, .032" thick, painted.

260.1 Material shall have a Kynar finish.

260.2 Fabricate and install metal trim to conform to building as specified in work order.

260.3 Installation must conform to SMACNA manual details.

261. Metal storm collar.

261.1 16 oz. copper per ASTM B 370-81.

261.2 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating.

261.3 Stainless steel, 26-gauge, ASTM A 167-82.

261.4 Aluminum, .032, ASTM B 221-82A.

261.5 Install storm collars over all pitched pockets as directed by prime contractor using specified material.

261.6 Install in cone shaped configuration per NRCA.

262. Metal coping, galvanized steel, 24 gauge, standing seam. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

262.1 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

262.2 Continuous cleat, 22-gauge, galvanized sheet steel, ASTM A 526. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

262.3 Fasteners as specified by roofing manufacturer. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

262.4 Fabricate coping cap per SAMNA details. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

262.5 Fascia edges to extend past wood a minimum of 1". In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

262.6 Fasten face with continuous lock strip. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

262.7 Fasten backside with screws and neoprene washers 30" o.c.

263. Metal coping, galvanized steel, 24 gauge, with butt plate. ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs

263.1 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating.

263.2 Continuous cleat, 22-gauge, galvanized sheet steel, ASTM A 526. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

263.3 Fasteners as specified by roofing manufacturer. ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

263.4 Fabricate coping cap with standing seams per most current SMACNA details. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

263.5 Fascia edges to extend past wood a minimum of 1".

263.6 Fasten face with continuous lock strip. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

263.7 Fasten backside with screws and neoprene washers in compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

264. Resolder joints in sheet metal.

264.1 Flux, cleaner, and solder as needed, and experience.

264.2 Wire brush the joint.

264.3 Clean area to be soldered.

264.4 Apply flux and solder as per SMACNA specifications.

264.5 Clean up site when through.

265. Metal edge, aluminum, .050" thick, 6" face, painted.

265.1 Material shall have a Kynar finish.

265.2 Metal edge shall have a minimum 6" face. In compliance ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs

265.3 Fabricate and install metal trim to conform to building as specified in work order.

265.4 Installation must conform to SMACNA manual details. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

266. Metal edge, aluminum, free floating fascia system. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

266.1 Metal edge shall have a minimum 6" face. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

266.2 Fabricate and install metal trim to conform to building as specified in work order.

266.3 Assemble fascia sections, deck bracket units, and joint plate to form each 10' fascia section.

266.4 Begin at corners. Snap prefabricated corner with joint plates onto first fascia section.

266.5 Position onto corner and loosely secure. Install remaining sections.

266.6 Visually align. Secure deck brackets to wood nailer.

266.7 Install new wood cant strip over deck brackets. Apply roofing membrane to top edge of cant.

266.8 Installation must conform to most current SMACNA manual details.

267. Parapet Wall Metal.

267.1 Metal panels are factory roll-formed 26- or 24-gauge steel, coated both sides with a layer of (Galvalume), aluminum-zinc alloy (approximately 55% aluminum, 45% zinc) applied by continuous hot dip method. Triple-spot minimum 0.55 once per square foot as determined by the triple-spot test per ASTM specification A-792. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

267.2 26 or 24 gauge galvanized, per ASTM specification A653, and painted with exterior colors of a full strength, 70% Kynar 500 & Hylar 5000 fluoropolymer coating.

267.3 Panels are designed in accordance with AISI "Specifications for the Design of Light Gauge, Cold-Formed Steel Structural Members", or CAN/CSAS136 "Cold-Formed Steel Structural Steel Members" and in accordance with sound engineering methods and practices.

268. Metal edge anodized finished aluminum, free floating fascia system 8 inches. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

268.1 A heavy aluminum extrusion with reinforced Hypalon elastomeric sheeting to form a flexible, free floating fascia system capable of accommodating dynamic perimeter roof movement. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

268.2 Install per manufacturer's specifications. In compliance with ICC IBC, 2021 Edition 1504.6 Edge systems for low slope roofs.

269. Metal edge, high performance fluorocarbon finished aluminum, free floating fascia system 8 inches. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs

269.1 A heavy aluminum extrusion with reinforced Hypalon elastomeric sheeting to form a flexible, free floating fascia system capable of accommodating dynamic perimeter roof movement. ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

269.2 Install per manufacturer's specifications. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

270. Metal edge anodized finished aluminum, free floating fascia system 6 inches. ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

270.1 A heavy aluminum extrusion with reinforced Hypalon elastomeric sheeting to form a flexible, free floating fascia system capable of accommodating dynamic perimeter roof movement.

270.2 Install per manufacturer's specifications. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs

271. Metal edge, high performance fluorocarbon finished aluminum, free floating fascia system 6 inches. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

271.1 A heavy aluminum extrusion with reinforced Hypalon elastomeric sheeting to form a flexible, free floating fascia system capable of accommodating dynamic perimeter roof movement. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

271.2 Install per manufacturer's specifications. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

272. New Aluminum Metal Cladding.

273. Furnish and install new uninsulated aluminum wall cladding.

273.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

273.2 The aluminum panels are to be installed only on structurally sound walls. Provide concealed anchorages to the walls as recommended by the panel manufacturer.

273.3 The anchorages should be capable of withstanding the code stipulated wind loads.

273.4 The joints between panels should be overlapping and positively sealed against water and air intrusion.

274. Furnish and install new insulated aluminum wall cladding.

274.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

274.2 The aluminum panels are to be installed only on structurally sound walls. Provide concealed anchorages to the walls as recommended by the panel manufacturer.

274.3 The anchorages should be capable of withstanding the code stipulated wind loads.

274.4 The joints between panels should be overlapping and positively sealed against water and air intrusion.

275. Furnish and install new insulated aluminum wall cladding panels (Architecture).

275.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

275.2 The aluminum panels are to be installed only on structurally sound walls. Provide concealed anchorages to the walls as recommended by the panel manufacturer.

275.3 The anchorages should be capable of withstanding the code stipulated wind loads.

275.4 The joints between panels should be overlapping and positively sealed against water and air intrusion.

276. Cladding of roof parapet walls with copings.

276.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

276.2 The aluminum panels are to be installed only on structurally sound walls. Provide concealed anchorages to the walls as recommended by the panel manufacturer.

276.3 The anchorages should be capable of withstanding the code stipulated wind loads.

276.4 The joints between panels should be overlapping and positively sealed against water and air intrusion.

277. New Exterior Finish Insulation System (EFIS).

277.1 Furnish and install an EFIS system by Dryvit as per manufacturer's recommendation.

277.2 Incorporate air and vapor barrier and weeping system as recommended by the manufacturer.

278. New exterior finish insulation system.

278.1 Furnish and install an EFIS system by Dryvit as per manufacturer's recommendation.

278.2 Incorporate air and vapor barrier and weeping system as recommended by the manufacturer.

279. New exterior finish insulation system w/o insulation.

279.1 Furnish and install an EFIS system by Dryvit as per manufacturer's recommendation.

279.2 Incorporate air and vapor barrier and weeping system as recommended by the manufacturer.

280. New Metal Copings.- New aluminum metal parapet copings.

280.1 Set up protection, scaffolding/swingstage as per OSHA requirements.

280.2 Field measure the parapet wall for fabrication of the metal coping for tight fit.

280.3 Install wood blocking on top of the wall and anchored to the wall.

280.4 Install continuous cleats on both sides of the wood blocking.

280.5 Install new anodized aluminum coping snapped on tight to the cleats.

280.6 Adjacent sections should be lapped a minimum of six inches and the joints should be sealed watertight with sealants**.**

281. Surface Preparation.

282. Cleaning of existing steel and surface.

282.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

282.2 Setup swingstage/scaffolding as per OSHA and local requirements.

282.3 Remove all rust from rebars using grinders and other power tools and handheld tools.

282.4 Clean concrete surface free of all laitance by blowing using compressed air or power washing the surface.

282.5 Coat exposed reinforcing with corrosion inhibitor such as Corr-Bond or Euco #452 LV Epoxy manufactured by Euclid Chemical Company or approved equal.

283. Coating of existing reinforcement.

283.1 Setup sidewalk protection, perimeter netting as required by local authorities and OSHA.

283.2 Setup swingstage/scaffolding as per OSHA and local requirements.

283.3 Remove all rust from rebars using grinders and other power tools and handheld tools.

283.4 Clean concrete surface free of all laitance by blowing using compressed air or power washing the surface.

283.5 Coat exposed reinforcing with corrosion inhibitor such as Corr-Bond or Euco #452 LV Epoxy manufactured by Euclid Chemical Company or approved equal.

284. Exterior rated gypsum board sheathing and substrate

285. EFIS Repair

285.1 Repair the exterior insulation and finish system (EIFS).

285.2 Clean and prepare repair area.

285.3 Protect people, vehicles, property, and all surfaces not intended for cleaning from splash, residue, fumes, rinse and wind drift.

285.4 Repair holes or other damage using a Rapid Patch product. The product needs to be applied at a thickness of 3/4" - 1" to allow proper heat generation for rapid cure. Under normal conditions, finish can be applied the same day.

285.5 With a sharp utility knife, cut through and remove the lamina, exposing a neat uniform-sized area of insulation slightly larger than the damaged area. Using a disk grinder or belt sander with a 20-grit aluminum oxide disk or belt, remove the finish around the cut, exposing the reinforced base coat around the damage area.

285.6 Cut out the loose, damaged foam to reveal fresh foam. Cutting off the foam all the way to substrate is not recommended. When foam in the damaged area is well bonded to the substrate, care must be taken to expose as little of the substrate as possible and prevent rupturing the surface of the substrate. The area to be patched should be round or rectangular in shape and between 3/4" and 1" in depth. Deeper patches should be filled with a piece of EPS, so the patch thickness is within this range. Rapid Patch material may be used to adhere the EPS filler to the substrate. Precisely mask the surrounding finish with masking tape.

285.7 Mix the Rapid Patch and apply the mixture to the damaged area with a margin trowel to a depth of approximately 1/8" below the existing base coat surface. Also add a thin layer of material on the exposed base coat surrounding the patch. Cut a piece of Detail Mesh to the proper size and place over the wet Rapid Patch overlapping the existing base coat a minimum of 1". Add additional Rapid Patch material to completely fill the damaged area, cover the mesh and feather onto the surrounding base coat. If the material appears initially loose, wait a short time until it stiffens up and level off any imperfections with additional Rapid Patch mixture as needed.

285.8 When the patching material in the damaged area is stiff enough, use a clean, damp margin trowel to smooth out the surface. This may be repeated until a satisfactory surface is achieved. The trowel must be clean and damp prior to each smoothing.

285.9 Let Rapid Patch set for at least 60 minutes, depending on ambient conditions. Apply the new finish over the patched area and texture to match the surrounding finish. Do not sand the patched area prior to finish application.

285.10 Prepare and repair EIFS according to manufacturer's application guidelines and related industry standards.

286. Woodwork

287. Demolition of plywood or standard 1" x 6" decking.

287.1 Before work starts, area below work must be protected and/or barricaded before deck removal begins.

287.2 Remove deteriorated decking, nails, and fasteners.

287.3 Dispose of old decking that can't be reused in an approved dumpsite or, when asked, donate wood to school football team for homecoming bonfire.

287.4 Inspect roof joists; repair or replace as directed by prime contractor. (See separate line item.)

287.5 All decking must be replaced and covered daily and comply with most current OSHA, EPA, and local building codes and regulations.

288. Demolition of standard 2" x 6" tongue and groove decking.

288.1 Before work starts, area below work must be protected and/or barricaded before deck removal begins.

288.2 Remove deteriorated decking, nails, and fasteners.

288.3 Dispose of old decking that can't be reused in an approved dumpsite or, when asked, donate wood to school drama club for theater set construction.

288.4 Inspect roof joists; repair or replace as directed by prime contractor.

288.5 All decking must be replaced and covered daily and comply with most current OSHA, EPA, and local building codes and regulations.

289. Plywood decking, CDX, 1/2" thick (or 15/32" optional).

289.1 Plywood panels shall be identified with the American Plywood Association (APA) grade trademark and shall meet the requirements of U.S. Products Standard PS-1 for soft plywood construction.

289.2 All plywood which has any edge or surface permanently exposed to weather shall be of the exterior type.

289.3 Plywood roof decking shall be grade C-D or better with exterior glue.

289.4 Proper fasteners shall be used.

289.5 Verify that surfaces to receive decking are prepared and ready.

290. Plywood decking, CDX, 5/8" thick.

290.1 Plywood panels shall be identified with the American Plywood Association (APA) grade trademark and shall meet the requirements of U.S. Products Standard PS-1 for soft plywood construction.

290.2 All plywood which has any edge or surface permanently exposed to weather shall be of the exterior type.

290.3 Plywood roof decking shall be grade C-D or better with exterior glue.

290.4 Proper fasteners shall be used.

290.5 Verify that surfaces to receive decking are prepared and ready.

291. Plywood decking, CDX, 3/4" thick.

291.1 Plywood panels shall be identified with the American Plywood Association (APA) grade trademark and shall meet the requirements of U.S. Products Standard PS-1 for soft plywood construction.

291.2 All plywood which has any edge or surface permanently exposed to weather shall be of the exterior type.

291.3 Plywood roof decking shall be grade C-D or better with exterior glue.

291.4 Proper fasteners shall be used.

291.5 Verify that surfaces to receive decking are prepared and ready.

292. Standard 1" x 6" decking, tongue and groove.

292.1 1 x 6 commercial grade with 15% maximum moisture content, single tongue and groove edges with FB-1200 psi. Must be stamped with dry stamp.

292.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

292.3 Verify that the surfaces are still ready to receive decking.

292.4 Install decking continuous over three supports.

292.5 Drive deck members tight using short block; do not hammer tongue. (Or fingers)

292.6 Nail each member to support with two 30d common blind and face nail for decking up to 2 1/4" thick and 40d common blind and face nail for decking 2 3/4" to 3" thick. 292.7 Toe nail groove to tongue at 40 to 50-degree angle starting l 1/4" from groove edge. Nail to each purlin using 8d common nails.

293. Standard 2" x 6" tongue and groove decking.

293.1 2 x 6 commercial grade with 15% maximum moisture content, single tongue and groove edges with FB-1200 psi. Must be stamped with dry stamp.

293.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

293.3 Verify that the surfaces are still ready to receive decking.

293.4 Install decking continuous over three supports.

293.5 Drive deck members tight using short block; do not hammer tongue. (Or fingers)

293.6 Nail each member to support with two 30d common blind and face nail for decking up to 2 1/4" thick and 40d common blind and face nail for decking 2 3/4" to 3" thick. 293.7 Toe nail groove to tongue at 40 to 50-degree angle starting l 1/4" from groove edge. Nail to each purlin using 8d common nails.

294. Cants, wood fiber, trapezoidal, 1 1/2" x 5 5/8".

294.1 Wood fiberboard, ASTM C 208, asphalt impregnated.

294.2 Type IV (or appropriate type) steep asphalt, ASTM D 312-84, UL Class A.

294.3 Install wood fiber cants set in a continuous mopping of steep asphalt at a rate of 25 lbs. per 100 square feet.

295. Cants, SBX treated wood, 4" x 4" diagonal.

295.1 4 x 4 treated wood cut on bias to form cant strip. Southern Pine, No. 2 grade, free from warping and decay. Pressure treated with Chromated Copper Arsenate (CCA) to meet AWPB, LP22, 0.40 retention and marked.

295.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

295.3 Install treated cant to wood nailer as outlined in work order.

295.4 Cants to be nailed 16" o.c. and fastened to walls as required by roofing manufacturer.

295.5 Top edge shall be flush with wall.

295.6 Corners are to be mitered to fit snug.

296. Nailer, SBX treated wood, 1" x 4".

296.1 1 x 4 treated wood. Southern Pine, No. 2 grade, free from warping and decay. Pressure treated with Chromated Copper Arsenate (CCA) to meet AWPB, LP22, 0.40 retention and marked. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

296.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

296.3 Install wood blocking as outlined in work order. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

296.4 Fasten blocking with approved fasteners in two rows staggered on 24" centers.

297. Nailer, SBX treated wood, 2" x 4". In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs

297.1 2 x 4 treated wood. Southern Pine, No. 2 grade, free from warping and decay. Pressure treated with Chromated Copper Arsenate (CCA) to meet AWPB, LP22, 0.40 retention and marked. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

297.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

297.3 Install wood blocking as outlined in work order. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

297.4 Fasten blocking with approved fasteners in two rows staggered on 24" centers.

298. Nailer, SBX treated wood,

299. 2" x 6"

299.1 2 x 6 treated wood. Southern Pine, No. 2 grade, free from warping and decay. Pressure treated with Chromated Copper Arsenate (CCA) to meet AWPB, LP22, 0.40 retention and marked. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

299.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

299.3 Install wood blocking as outlined in work order. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

299.4 Fasten blocking with approved fasteners in two rows staggered on 24" centers.

300. 2" x 8" optional In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

300.1 2 x 8 treated wood. Southern Pine, No. 2 grade, free from warping and decay. Pressure treated with Chromated Copper Arsenate (CCA) to meet AWPB, LP22, 0.40 retention and marked. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

300.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

300.3 Install wood blocking as outlined in work order. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

300.4 Fasten blocking with approved fasteners in two rows staggered on 24" centers.

301. Curbing, SBX treated wood, 2" x 12". In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

301.1 2 x 12 treated wood. Southern Pine, No. 2 grade, free from warping and decay. Pressure treated with Chromated Copper Arsenate (CCA) to meet AWPB, LP22, 0.40 retention and marked. In compliance with ICC IBC, 2021 Edition, 1504.6 Edge systems for low slope roofs.

301.2 Nails must meet Federal Specification FF-N-105B for common nails, style 10, cement coated.

301.3 Prepare area to receive curb as outlined in work order.

301.4 Fabricate curb to fit opening as outlined in work order.

301.5 Nail or screw curb in place using applicable fastener for deck type.

301.6 Install new joist with crown edge up.

301.7 Support ends of each member minimum 3" of bearing on wood.

301.8 Lap members framing from opposite side of beams, minimum 4".

301.9 Support joist alternately at ends with solid blocking, 2" thick by depth of joist, between members crossing bearing joint.

301.10 When nominal depth to thickness ratio of joist exceeds 6, install bridging at 8' intervals.

301.11 Double rafters at roof openings to provide headers and trimmers and support with metal hangers following local building code.

302. Joist, fir,

303. 2" x 6".

303.1 2 x 6 fir, standard grade or better for light framing; grade 2 or better for structural framing.

303.2 Nails must meet Federal Specification FF-N-105B for common nails, 16d, style 10, coated.

303.3 Bolts, ASTM A 309-76B, Grade A.

303.4 Lag screws and bolts FF-561-C, Type II, Hex Head, Grade B.

303.5 Toggle Bolts, Federal Specification FF-B-558-C, Type I, Class A, Style I.

303.6 Install new joist with crown edge up.

303.7 Support ends of each member minimum 3" of bearing on wood.

303.8 Lap members framing from opposite side of beams, minimum 4".

303.9 Support joist alternately at ends with solid blocking, 2" thick by depth of joist, between members crossing bearing joint.

303.10 When nominal depth to thickness ratio of joist exceeds 6, install bridging at 8' intervals.

303.11 Double rafters at roof openings to provide headers and trimmers and support with metal hangers following local building code.

304. 2' X 8" Optional

305. Joist, fir,

306. 2" x 10".

306.1 2 x 10 fir, standard grade or better for light framing; grade 2 or better for structural framing.

306.2 Nails must meet Federal Specification FF-N-105B for common nails, 16d, style 10, coated.

306.3 Bolts, ASTM A 309-76B, Grade A.

306.4 Lag screws and bolts FF-561-C, Type II, Hex Head, Grade B.

306.5 Toggle Bolts, Federal Specification FF-B-558-C, Type I, Class A, Style I.

306.6 Install new joist with crown edge up.

306.7 Support ends of each member minimum 3" of bearing on wood.

306.8 Lap members framing from opposite side of beams, minimum 4".

306.9 Support joist alternately at ends with solid blocking, 2" thick by depth of joist, between members crossing bearing joint.

306.10 When nominal depth to thickness ratio of joist exceeds 6, install bridging at 8' intervals.

306.11 Double rafters at roof openings to provide headers and trimmers and support with metal hangers following

307. 2" X 12" optional

308. Standing Seam Metal Roof System (SSMRS) Price Each installation, inspection, renovation, maintenance and repair equipment, supplies, and materials.

309. Specification Using Line Items

310. Pre-engineered SSMRS, products (20-year roof)

310.1 Pre-engineered metal roofs shall be systems with high locking ribs and concealed fastener clips that will allow the roof to experience natural expansion and contraction without damage to the seams or fasteners during extreme heat and cold conditions.

310.2 When possible, the SSMRS installed will be manufactured by one company. If the manufacturer is not the prime contractor, the SSMRS system will have the same warranty as other systems offered on this contract. The manufacturer must have been designing and manufacturing certified pre-engineered metal roofing systems for at least ten years; twenty years or more manufacturing experience is preferred. Roofing panels shall be formed by the manufacturer in their factory under ISO 9000 certification and practices.

310.3 The installer will be certified in the installation of metal roofing.

310.4 The design dead load (weight of the SSMRS components) shall be determined by the manufacturer, and shall not exceed the design load of the structure, as determined by structural analysis

310.5 Wind uplift loads shall meet or exceed FM-I-90. Thermal loads shall allow a 100-degree temperature range without damage to the structure.

310.6 Structural cold formed steel framing members and their connections shall be in conformance to AISI SG-673. Slopes from 1/4:12 to 1/2:12 may require a trapezoidal panel.

310.7 Fasteners shall be zinc-coated, stainless steel or cadmium, aluminum, corrosion resistant steel, or nylon capped steel, as specified by the manufacturer. All exposed metal roof fasteners shall have the same coating and thickness of coating as the panels. Any exposed metal roof fasteners shall be gasketed or have gasketed washers on the exterior side of the covering to waterproof the penetration. Washers shall be neoprene or other equally durable elastomeric material approximately 1/8th inch thick. Screws and bolts shall be as recommended by the manufacturer. Bolts shall have locking washers and nuts. Blind screw-type expandable fasteners shall be not less than 1/4th inch diameter; blind pop rivets shall be at least 9/32-inch diameter

310.8 Steel roof panels shall be designed in compliance with AISI SG-673; aluminum panels shall be designed in accordance with AA ASD-1 and AA ASD-30. On roofs with less than 30 feet of unbroken slope, panels shall be sufficiently long to cover the entire length. When length of run exceeds 30 feet and panel splices are provided, each sheet in the run shall extend over three or more supports. (Sheets longer than 30 feet may be provided, if approved by the buyer.) Runs of variable width panels may be used to maintain panel modularity. Factory punched structural members shall be used with pre-punched trapezoidal panels to ensure maintaining modularity. Panel clip attachments for trapezoidal panels shall be made using self-tapping 3/8" fastener into a pre-punched structural member that will allow for parallel alignment with panel corrugation. Sheets shall cover not more than 16 inches in place. SSMRS with panels in excess of 12 inches in width shall have standing seams rolled during installation by an electrically driven seaming machine. Standing seams shall be not less than 2 inches in height. Sheets shall be square-cut or miter-cut (except for gable end wall sheets that may be customized, as necessary). Roof panels shall have a factory color finish of a polyvinylidene fluoride coating not less than 0.8 mil over a primer coat with a dry film thickness of 0.3 mils on the exposed sides. Color shall be selected by the buyer. The interior prime coat shall not be less than 0.3 mils of primer. Sheets shall meet or exceed the salt spray test minimums with a rating of 10 and 7 (ASTM D 1654); for ASTM D 522, the panels will show ho evidence of fracturing; for ASTM G 23 using a type D apparatus to verify weathering, no cracking, peeling, blistering, loss of adhesion or corrosion shall be evident (also ASTM D 4214 and 2244). Panels shall pass a 1000-hour test for humidity as described in ASTM D 2247. Factory painted sheets shall be impact resistant (ASTM D 2794), resistant to abrasion (ASTM D 968),

have a specular gloss of 20 or less at an angle of 60 degrees when measured by ASTM D 523, and be resistant to pollution in accordance with ASTM D 1308.

310.9 Accessories (see above and below, as necessary) shall be capable of resisting the specified design wind uplift loads and shall allow for expansion and contraction of the panels in the heat and cold. Any exposed fasteners shall not restrict the free movement of the roof panel system. Flashing, gutters, soffits, fascias, trim, metal closures strips, caps, and similar metal accessories shall be not less than the minimum thickness specified for the roofing panels and shall be color coordinated. Molded closure strips shall be closed-cell or solid-cell synthetic rubber or neoprene, or pre-molded polyvinyl chloride to match configuration of the covering. Accessories shall not absorb or retain water or snow. Thermal spacer blocks and other thermal barriers at concealed clip fasteners shall be as recommended by the manufacturer. Gutter liner products including, but not limited to, adhesives, splicing cements, solvents, and sealants shall be only those recommended by the manufacturer. Prefabricated shaped flashings shall be used when possible. Sheared edges shall be hemmed. Membranes shall be ultra-violet resistant materials and shall conform to ASTM D 4637, Grade 1: Type 1 (EPDM), Class SR, 0.060-inch minimum thickness.

310.10 Concealed anchor clips shall be supplied by the manufacturer. Clip bases shall have factory drilled or punched holes; clips used with panel width greater than 12 inches shall be made from multiple pieces to permit thermal expansion.

310.11 Prime contractor will use insulation with an R-value as high as practical that will result in the most economy for the buyer (2" minimum required for trapezoid roof panel). The R-value shall be determined using ASTM C 518. Insulation shall be flame resistant, as required in other portions of this IFB. Rigid board insulation shall conform to ASTM C 612, Form A, Class 1.

310.12 Sealant shall be elastomeric and contain no asphalt or oil; when exposed, the sealant shall cure to a rubber-like consistency (be non-hardening). Roof panel standing seam shall have a factory-installed continuous sealant.

310.13 Gaskets and insulating compounds shall be non-absorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be non-running after drying.

310.14 If the system design calls for subpurlins, they shall meet manufacturers requirements. The uncoated thickness may be a minimum of 0.059 inches if bolts or structural blind fasteners are used to attach the concealed anchor clips to the subpurlins.

310.15 A vapor retarder material of polyethylene sheeting that conforms to ASTM D 4397 shall be used. A fully compatible tape must provide equal or better water vapor control, if used.

310.16 The prime contractor shall provide, upon request to the agency buyer, the following certifications:

310.17 That the actual thickness of the uncoated steel sheets used on the SSMRS components including roof panels, subpurlins, and concealed anchor clips comply with the specifications;

310.18 That the materials used in the installed components are made from certified steel coil materials;

310.19 That the SSMRS covered by the test report is, in fact, the same type, quality and manufacture as that specified; 4) that the sheets to be furnished are produced under a continuing quality control program and that a representative sample consisting of not less than five pieces have been tested and has met the quality standards specified for factory color finish; 5) mill certification for structural bolts and roof panels; and 6) factory detail drawings of systems details shall be provided.

310.20 Prior to installation, panels that are damaged or discolored will be removed from the worksite; buyer will not be charged for damaged, discolored, or improperly ordered panels or accessories.

310.21 Panels with improperly drilled holes shall not be used in the construction. No panels or parts will be installed that have metal cuttings, hazardous burrs, or exposed foreign material.

311. Subpurlins

311.1 Anchor the subpurlins to the purlins or other roof members with bolts or screws provided by the manufacturer.

311.2 Spacing shall not exceed 30 inches on centers at the corners, eaves, and roof edges. Spacing shall not exceed 60 inches (5 feet) for the remainder of the roof, unless specified by a structural engineer.

312. Roof panel installation

312.1 Panels will be installed with the standing seams in the direction of the roof slope. No panels shall be installed that contain tears or punctures.

312.2 Side seam connections for installed panels shall be completed at the end of each day's work.

312.3 Sealant will be applied, as recommended by the manufacturer to achieve water-tight roofing. End flaps, when approved by the buyer, shall be made over framing members.

312.4 Closures, flashings, EPDM rubber boots, and other accessories shall be installed, as per field drawings.

312.5 Exposed fasteners shall be installed in straight lines and shall be permitted only at the rakes, eaves, panel splices, and where required to attach flashings, gutter, and similar accessories.

312.6 Panel splices shall be staggered on all slopes less than 2:12.

312.7 All panel splices on trapezoid panels shall be staggered.

313. Field Forming of Panels

313.1 Panels will be installed with the standing seams in the direction of the roof slope. No panels shall be installed that contain tears or punctures.

313.2 Side seam connections for installed panels shall be completed at the end of each day's work.

313.3 Sealant will be applied, as recommended by the manufacturer to achieve water-tight roofing.

313.4 End flaps, when approved by the buyer, shall be made over framing members. 9.8.4.4 Closures, flashings, EPDM rubber boots, and other accessories shall be installed, as per field drawings.

313.5 Exposed fasteners shall be installed in straight lines and shall be permitted only at the rakes, eaves, panel splices, and where required to attach flashings, gutter, and similar accessories.

313.6 Panel splices shall be staggered on all slopes less than 2:12.

313.7 All panel splices on trapezoid panels shall be staggered.

314. Concealed anchor clips

314.1 Roof panels shall be fastened to framing members with concealed fastening clips or other concealed devices.

314.2 Clips shall be attached to the building's structural system or to the subpurlins with bolts or screws.

314.3 Clips shall be installed as in 3.8.1 above.

315. Vapor retarder installation

315.1 A general-purpose tape shall be installed over all the seams of the structural roof decking at any penetrating edges, and at all surface areas that exhibit sharp burrs or protrusions.

315.2 A double ply of 6 mil polyethylene sheet shall be installed over the entire deck surface, resulting in 12 mil of covering. (Optional 6 mil single ply may be priced, but only used when approved by the agency buyer.)

315.3 Tape shall be used to seal the edges to the sheets to the decking, to the edge of the roof supporting structure, or to the sheet below.

315.4 Sheet edges shall be overlapped not less than 6 inches.

315.5 Sufficient material shall be provided to avoid inducing stresses in the sheets due to stretching or binding.

315.6 All tears or punctures that are visible in the finished surface at any time during the construction process shall be sealed with the tape. Be fanatic about this detail.

316. Insulation installation

316.1 Insulation shall be installed as indicated by the manufacturer (see other sections that apply).

317. Gutters (SSMRS only)

317.1 Gutters shall terminate at least 1/2 inch away from vertical surfaces. Upper roofs will not drain on lower roofs. Gutters will carry water from upper roofs to the gutter of the lower roof

317.2 Brackets and spacers shall be fastened to roof nailer by screws and shall interlock with or be fastened to the leading edge of the gutter.

317.3 Spacers shall be 1/16 inch by 1-inch flat stock of the same material as the gutter.

317.4 Brackets and spacers shall be alternated at not more than 36 inches on centers.

317.5 Gutters shall be integral with roof construction and long with high points equidistant from downspouts and shall have a slope of not less than 1/16 inch per foot.

317.6 Metal gutters shall be complete and suitable for liner membrane installation before roofing is begun. Surfaces against which membrane is applied shall be smooth, clean, and free from dirt, water, cigarette ashes, oil, grease, sharp edges, and other debris.

318. Gutter Liners

319. Flashing.

319.1 Prefabricated flashing shall be used, where possible.

319.2 Sheared edges of metal flashings that contact the membrane shall be turned into a tight hem.

319.3 Edges of gutter liner shall be flashed.

319.4 Flashing will be used at roof hips and valleys, at roof penetrations, in joints between a roof and a vertical wall, and in places necessary to direct the flow of water or to control moisture.

319.5 The splice shall be sealed a minimum of 3-inches on each side of the fasteners that attach the membrane to the gutter.

319.6 The installed flashing shall be fastened at the top of the flashing a maximum or 12 inches on center under metal counter-flashing on the high side of the gutter.

320. Expansion joints

320.1 Expansion joints shall be covered using elastomeric flashing in accordance with the manufacturer's recommendations.

320.2 Prime contractor shall design gutter corners, ends, expansion joints and expansion joint spacing.

321. Finishing touches (no additional cost in contract).

321.1 All work areas will be protected from damage by other trades.

321.2 After other trades are completed, any protective coverings will be removed, and the roof shall be inspected.

321.3 Exposed SSMRS shall be cleaned at completion of installation.

321.4 Debris, greases, oil films, and handling marks shall be removed.

321.5 Panels and roof surface shall be scrubbed clean, where necessary.

321.6 Exposed metal areas will be free of dents, creases, waves, scratch marks, solder and weld marks.

321.7 Abraded or corroded spots on painted surfaces shall be wire brushed and touch up painted with the same material used in the original coating.

321.8 Factory colored finishes shall be touched up as necessary with a paint recommended by the manufacturer.

321.9 The resulting roof will demonstrate American craftsmanship that will make the prime contractor proud and the owner pleased with the new roof.

321.10 Paint to match factory finish may be purchased for future use.

322. Snow Retention Assemblies.

322.1 Furnish all labor, material, tools, equipment and services for the installation of complete snow retention system as indicated on plans, and in accordance with provisions of Contract Documents.

322.2 Include all prefinished metal color strips to match the roof panels, splice connectors for crossmember sections, "SnoClips" if indicated on drawings and any miscellaneous related items necessary for a complete installation.

323. Self-adhering ice and water shield membrane for shingles, tiles, metal waterways, penetrations, valleys, ridges, edges, etc.

324. Roof Specialties and Accessories

325. Remove roof hatch.

325.1 Remove according to work order and dispose of in compliance with all laws.

326. Roof hatch, aluminum, 2'6" x 3'0"

326.1 Aluminum hatch, insulation curb and top, Bilco Type S or approved equal.

326.2 Install hatch as directed on work order.

326.3 Flash per line on work order.

327. Roof hatch, aluminum, larger sizes

327.1 Aluminum hatch, insulation curb and top, Bilco Type S or approved equal.

327.2 Install hatch as directed on work order.

327.3 Flash per line on work order.

328. Remove existing roof drain, except plumbing

328.1 Procure new roof drain manufactured by Josam or Smith, to match existing.

328.2 Prepare roof mat in drain area per work order.

328.3 Remove existing roof drain.

328.4 Install new drain and flash.

328.5 Install deck clamp per work order.

329. Install new 4" roof drain, except plumbing.

329.1 Install new drain and flash, per work order.

330. Install new 6" roof drain, except plumbing.

330.1 Install new drain and flash, per work order.

331. Reflash existing roof drain

331.1 Asphalt primer per ASTM D 3960-87, quick drying.

331.2 4 lb. sheet lead, ASTM B 29-79 (84).

331.3 Reinforcement mesh, vinyl coated woven glass scrim, weight 1.32 lb/100 square feet per ASTM D 146-78A, tensile strength 75 lbf per ASTM D 146-78A.

331.4 Asphalt mastic, heavy fiberated mastic with penetrating oils and plasticizing agents to meet UL and ASTM D 276-85, ASTM D 1475-85, 105° flash point per ASTM D 93-85.

332. Plumbing stack, 4# lead flashing.

332.1 Asphalt primer per ASTM D 3960-87, quick drying.

332.2 4 lb. sheet lead, ASTM B 29-79 (84).

332.3 Asphalt mastic, heavy fiberated mastic with penetrating oils and plasticizing agents to meet UL and ASTM D 276-85, ASTM D 1475-85, 105° flash point per ASTM D 93-85.

332.4 Install new 4 lb. lead plumbing stack flashing as in work order.

332.5 Prime flashing flange and flash the flange as specified by membrane manufacturer.

333. Scupper, sheet steel, 24-gauge, ASTM A 526, match existing configuration.

333.1 Steel, ASTM A 526, with 1.25 oz. per square feet galvanized coating, 24 gauge.

333.2 Solder, ASTM B 32-93, alloy grade Sn50A.

333.3 Neutralize flux after soldering.

333.4 Remove old scupper and install new scupper to match existing.

333.5 Flash per manufacturer's instruction.

334. Remove existing walkway, built-up roofs.

334.1 Furnish trucks, equipment, and labor to remove walkways.

334.2 Do not damage roof.

334.3 Dispose of materials as in other specifications.

335. Walkway, built-up roofs, desert tan fiberglass.

335.1 Install modified cap sheet walkway that will neither curl nor shrink.

335.2 Attach as specified by manufacturer.

335.3 Install walkway sheet into a continuous and solid mopping of Type IV asphalt.

336. Walkway built up roofs, non-skid.

336.1 Mark out location of the walkway with chalk line on a smooth, clean, and dry roof.

336.2 If roof surface is old, oxidized, dirty (bird feathers, grime, etc.), prime work surface at the rate of one gallon of primer per 100-150 s/f. Allow primer to dry. (See primer spec elsewhere.)

336.3 Using hot asphalt or cold adhesive, apply a uniform and continuous application of asphalt adhesive for walk pads.

336.4 Walk pads shall be 3' x 5' x 3/8" and shall weigh about 32 pounds each, being made of asphaltic fiberglass, reinforced with non-skid ceramic granules for a final finish.

336.5 Install with one to three inches of space between pads.

337. Walkway, single ply roof.

337.1 Mark out location of the walkway with chalk line on a smooth, clean, and dry roof.

337.2 If roof surface is old, oxidized, dirty, prime work surface at the rate of one gallon of prime per 100-150 s/f. Allow primer to dry. (See primer spec elsewhere.)

337.3 Install 3' x 5' non-asphaltic walk pads. Walk pads must have a non-skid surface.

337.4 Adhesives must not be asphaltic and must be compatible to the single ply membrane.

337.5 Allow one to three inches of space between pads.

337.6 For areas of high traffic, a 30" wide roll of chopped rubber particles and synthetic binders may be attached to the roof.

337.7 Rolled walkway may be attached with special tape approved by the manufacturer, with hot asphalt, or with a rubber-based adhesive approved by the manufacturer.

337.8 Membrane may also be used as a roof protection layer between HVAC wood sleepers, pipe supporting bracing, and other roof-top equipment that is not anchored to the decking.

338. 30" wide roll goods, tape attached

339. 30" wide roll, hot asphalt attached

340. 30" wide roll, adhesive attached

341. Roof ventilators.

341.1 Install roof ventilators per roof membrane manufacturer's specification.

341.2 Vents shall be galvanized, 26 gauge, have no moving parts and shall be screened.

341.3 Vents shall be installed a minimum of 8" above roof surfaces to prevent leaks.

341.4 Vents shall match existing vents, if possible.

341.5 Vents shall comply with all codes.

342. Roof ladder, steel, bolted to concrete, up to 20 feet, without cage.

342.1 Fixed ladder with walk-thru handrails. Ladders are designed for applications where safe landing access is required. Ladders are one-piece welded assemblies for use in applications less than 20 feet in vertical height.

342.2 Side members are 1/4" x 2" x 2" steel angle with 3/4" corrugated steel round climbing rungs on 12" centers. Standoff mounting brackets are 7".

342.3 Walk-thru handrails extend 42" above landing surface. Mounting brackets included. Gray lacquer finish is standard. Safety cages are designed to OSHA specifications with flared bottom opening for easy entry.

342.4 Install roof access ladder where specified in contract.

342.5 All fastening, design, and height requirements to comply with local, state, and federal codes for access ladders. In compliance with IBC, 2006 Edition, 1504.5 Edge securement for low-slope roofs.

343. Roof ladder, steel, bolted to concrete, 20 feet and up, with cage; with intermediate landings as required by Code

343.1 Fixed ladder with walk-thru handrails. Ladders are designed for applications where safe landing access is required. Ladders are one-piece welded assemblies for use in applications more than 20 feet in vertical height.

343.2 Side members are 1/4" x 2" x 2" steel angle with 3/4" corrugated steel round climbing rungs on 12" centers. Standoff mounting brackets are 7".

343.3 Walk-thru handrails extend 42" above landing surface. Mounting brackets included. Gray lacquer finish is standard. Safety cages are designed to OSHA specifications with flared bottom opening for easy entry.

343.4 Install roof access ladder where specified in contract.

343.5 All fastening, design, and height requirements to comply with local, state and federal codes for access ladders.

344. Roof ladder, security ladder guard.

344.1 Security ladder guard is 6' long and is mounted directly over the ladder climbing rungs to prevent unauthorized use. Ladder guard has a one-piece continuous hinge and a lockable hasp.

344.2 Mount ladder guard per manufacturer's instruction.

345. Termination bar, aluminum, 1/4" x 1".

345.1 1/4" x 1" extruded aluminum termination bar with caulking cup to meet ASTM B 222185A.

345.2 Fasteners to meet Federal Specifications FF-N-105B (3), Type II, Style 20, roofing nails; 6061-913, flat head, diamond point, round, barbed shank to wood curbing.

345.3 Lead anchors 1/4" x 1" diameter by specified length to masonry/concrete to meet ASTM B 29-79 (84).

345.4 Install termination bar to specified area per work order.

345.5 Fasten termination bar 8" on center.

346. Pitch pocket, 24-gauge, GI, 6" x 6", with storm collar, hemmed to outside, soldered corners and seams.

346.1 Prime inside of pitch pan and deck flange. Deck flanges shall have corners filled and soldered. Fill 3/4 of pan with 3000 psi, non-shrink grout and top with fibrated asphalt mastic, non-asbestos, with 9.3 lbs./gallon density.

346.2 Install pitch pocket and flash per membrane manufacturer.

346.3 Fasten storm collar and caulk with approved sealant.

347. Pitch pocket, 24-gauge, GI, 8" x 8" and 12' x 12', with storm collar, hemmed to outside, soldered corners and seams.

347.1 Prime inside of pitch pan and deck flange. Deck flanges shall have corners filled and soldered. Fill 3/4 of pan with 3000 psi, non-shrink grout and top with fibrated asphalt mastic, non-asbestos, with 9.3 lbs./gallon density.

347.2 Materials per SMACNA or NRCA specifications.

347.3 Install pitch pocket and flash per membrane manufacturer.

347.4 Fasten storm collar and caulk with approved sealant.

348. Pitch pocket, resurface top only.

348.1 Material needed, asphalt mastic.

348.2 Remove loose materials.

348.3 Fill pitch pocket with mastic, crown 1/2 to shed water, size 6" x 6".

349. 8 "x 8"

349.1 Material needed, asphalt mastic.

349.2 Remove loose materials.

349.3 Fill pitch pocket with mastic, crown 1/2 to shed water, size 8" x 8".

350. 12" x 12"

350.1 Material needed, asphalt mastic.

350.2 Remove loose materials.

350.3 Fill pitch pocket with mastic, crown 1/2 to shed water, size 12" x 12".

351. Expansion joint, butyl or neoprene bellows, galvanized flange.

351.1 Install materials with fasteners as per work order.

352. Expansion joint, CSPE reinforced.

352.1 Install CSPE reinforced elastomeric membrane with manufacturer specified adhesive.

352.2 Flash as specified by manufacturer.

353. Repair kit for dry repairs.

353.1 One 3-gallon pail with safety label.

353.2 One roll reinforcing mesh, 6" by 100'.

353.3 One roofing knife.

353.4 One 3" paint brush.

353.5 One 2” margin trowel.

353.6 Two gallons of reinforced flashing mastic.

353.7 One 4” stiff bristle brush.

353.8 One-gallon roofing primer.

354. Repair kit for wet repairs.

354.1 One 3-gallon pail with safety label.

354.2 One 2” margin trowel.

354.3 Two gallons of wet patch, fiber reinforced mastic.

354.4 One 4” stiff bristle brush.

355. Skylights. (price each size and lens combination)

355.1 Curb mounted skylights will be installed with curbs a minimum of 8 inches above the finished roof.

355.2 Skylights will be installed per the instructions of the skylight manufacturer.

355.3 Special energy-efficient and light enhancing skylights may be offered.

355.4 Skylights will be in standard sizes and special sizes, as needed. Sizes will include 3’ x 5’, 4’ x 4’, and 4’ x 8’.

355.5 All OSHA rules related to worker safety around roof openings will be carefully observed.

356. Standard 3' x 5', 4' x 4', 4' x 8' with single clear lenses

357. Standard 3' x 5', 4' x 4', 4' x 8' with clear double lenses

358. Skylight lens replacement only, clear

359. Skylight lens replacement only, double clear

360. Security/fall bars for skylights.

360.1 Bars shall meet UBC, OSHA, state, and federal requirements when skylights are installed.

360.2 Skylight security/fall bars will be installed per the instructions of the manufacturer.

360.3 Skylight security/fall bars will be in standard sizes and special sizes, as needed.

360.4 All OSHA rules related to worker safety around roof openings will be carefully observed. Sizes will include but not limited to:

361. 3' x 5'

362. 4' x 4'

363. 4' x 8'

364. Special sizes

365 Roof Services

366. Asbestos core testing and patch of existing roof surface.

366.1 Asbestos core test size, 2” x 2”.

366.2 Send to accredited lab to produce report on asbestos content.

366.3 Repair hole left by core sample.

367. Core analysis, 14” x 14” and patch of existing roof surface.

367.1 Analysis and evaluation of 14” x 14” roof core. Specific information such as tensile strength, membrane type, bitumen type and bitumen softening point, number of plies, shall be provided to determine whether a roof should be restored or replaced.

367.2 Repair hole left by core sample.

368. Non destructive roof scan, up to 50,000 square feet, full service.

368.1 A.G.A. infrared scanning equipment for rooftop analysis.

368.2 Full service shall include daytime inspection of roof area to be scanned with daytime photos of roof conditions.

368.3 Nighttime infrared scan with painted lines of wet areas and verification of survey results using cores and moisture probes to verify infrared results.

368.4 A comprehensive report that includes outline drawing of building showing location of wet insulation, results of core analysis, roof condition report, energy loss estimate.

369. Additional foot over 50,000 sq ft

370. Non destructive roof scan, up to 50,000 square feet, limited service.

370.1 A.G.A. infrared scanning equipment for rooftop analysis.

370.2 Limited service shall include daytime inspection of roof area to be scanned with daytime photos of roof conditions.

370.3 Nighttime infrared scan with painted lines of wet areas and verification of survey results using cores and moisture probes to verify infrared results.

370.4 Does not include the comprehensive report.

371. Additional foot over 50,000 sq ft

372. Roof inspection services (visual inspection of roofing service/membrane, flashings, counterflashings, copings, parapets, trims, hatches, penetrations, curbs, roof-mounted equipment, etc. with a written report of findings and recommendations

372.1 Daily full-time monitoring of roofing, caulking, decking and waterproofing projects at time of application to ensure successful completion of the project. Written reports verifying how work is progressing will be given to the owner.

372.2 Report shall include progress photos and plan showing area where work was performed, and amount of work completed that day.

373. Field/shop drawings, up to 10,000 square feet.

373.1 Roof drawing (scaled 1/8”).

373.2 Sectional details.

373.3 Perimeter details (scaled 1 1/2” or 3/4”).

374. Field/shop drawings, 10,000-50,000 square feet.

374.1 Roof drawing (scaled 1/8”).

374.2 Sectional details.

374.3 Perimeter details (scaled 1 1/2” or 3/4”).

375. Field/shop drawings, over 50,000 square feet.

375.1 Roof drawing (scaled 1/8”).

375.2 Sectional details.

375.3 Perimeter details (scaled 1 1/2” or 3/4”).

376. Prime contractor’s warranty, restoration, less than 10,000 square feet, minimum charge.

376.1 Furnish 5-year manufacturer warranty.

376.2 Cover material failure.

376.3 Cover leak repair.

376.4 Cover contractor two years labor on workmanship.

376.5 Copy to owner on acceptance.

377. Prime contractor’s warranty, restoration, over 10,000 square feet, minimum charge.

377.1 Furnish 5-year manufacturer warranty.

377.2 Cover material failure.

377.3 Cover leak repair.

377.4 Cover contractor two years labor on workmanship.

377.5 Copy to owner on acceptance.

376. Prime contractor's warranty, restoration, less than 10,000 per sq ft, minimum charge

376.1 10-year material and labor.

376.2 Flashings up to termination.

376.3 Blister repairs over 4 square feet.

376.4 Contractor two-year material and labor.

376.5 Provide 2-year, 5-year, 7-year inspection of roof with written report of condition and based on specifications identified in 9.10.17.

376.6 Provide list of owner's maintenance items with warranty.

376.7 Provide additional cost for 15- and 20-year warranty after Tab 6.

377. Prime contractor's warranty, restoration, over 10,000 sq ft, minimum charge

377.1 10-year material and labor.

377.2 Flashings up to termination.

377.3 Blister repairs over 4 square feet.

377.4 Contractor two-year material and labor.

377.5 Provide 2-year, 5-year, 7-year inspection of roof with written report of condition and based on adherence to specifications.

377.6 Provide list of owner's maintenance items with warranty.

377.7 Provide additional cost for 15- and 20-year warranty after Tab 6.

378. Prime contractor's warranty, re-roof, total system, 10 year, less than 10,000 sq ft, minimum charge (Standard)

379. Prime contractor's warranty, re-roof, total system, 10 year, less than 10,000 sq ft, minimum charge (includes 2 ,5, 7, 10, 15 year inspections)

380. 10 year Restoration Warranty Under 10,000 Square Feet, Inspections in Years 2 & 5

381. 10 year Restoration Warranty Over 10,000 Square Feet, Inspections in Years 2 & 5

382. Prime contractor's warranty, re-roof, total system, 10 year, more than 10,000 sq ft, minimum charge (Standard)

383. Prime contractor's warranty, re-roof, total system, 10 year more than 10,000 sq ft, minimum charge (includes 2, 5, 7, 10, 15 year inspections)

384. Per diem rate per worker per 24 hour period of time

384.1 Per diem costs are based on one person (worker) per day, excluding travel. [For example, if an eight-person crew is contracted to work 10 days at a worksite outside the metropolitan area, a per diem of $40 would be $40 x 8 workers x 10 days, or $3,200.

384.2 Contractor/subcontractor may not charge per diem cost if contracted work can be completed within an eight (8) hour day.

384.3 On projects where overnight per diems are being charged, prime contractor shall be allowed to charge for crews per diem for days where crews were not allowed to work due to poor weather. If crews were allowed to work fewer than 3 hours in a 24hour day, per diem may be charged.

384.4 Poor weather days must be recorded and reported to the buyer each week. Any days not reported during a single week (Sunday through Saturday) will not be allowed.

384.5 Contractor shall not charge for weather days when days lost are fewer than one crew day per 200 squares.

384.6 In price quotation, indicate geographic areas, by county or region, where the per diem rate becomes effective. No per diem is allowed in major metropolitan counties.

385. Prime contractors per diem/costs for asbestos abatement planning.

385.1 All roofing abatement work shall be done in strict accordance with all applicable federal, state and local regulations, standards, codes, and ordinances that govern asbestos abatement.

385.2 The most recent addition of any relevant regulation, standard, codes, and ordinances shall be followed. Where there is conflict among the documents, the most stringent shall be used, unless such use, due to the conflict, puts the district at risk.

385.3 The prime contractor shall assume full responsibility and liability for any subcontractor's compliance with all applicable laws, especially pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying adjacent areas to the roofing site.

385.4 The prime contractor will provide the school district with a notarized statement, signed by an officer of the subcontractor, that contains the following information:
1) a record of any citations issued by federal, state, or local regulatory agencies relating to asbestos abatement activities, including projects, dates, and resolutions;
2) a list of any penalties incurred through non-compliance with asbestos abatement project specifications including liquidated damages, overruns in scheduled time limitations and resolutions; and
3) a list of any asbestos-related proceedings that are currently in progress. The AEPA Participating Agency shall have the right to request the prime contractor secure another subcontractor, if any asbestos-related problem was not resolved in a satisfactory manner.

385.5 The prime contractor shall present to the AEPA Participating Agency a list of specific requirements that the subcontractor agrees to follow, including a list of Occupational Safety and Health Administration (OSHA) Title 29 regulations and a list of Title 40 codes from the Asbestos Hazard Emergency Response Act (AHERA) and the National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations.

385.6 The plan shall identify all abatement materials and equipment to be used in the roof repair or restoration project.

385.7 All necessary protective clothing, personal respirators, scaffolding, ladders, and other equipment shall be approved by the district prior to abatement. The plan shall identify when respirators must be used. A respirator must be used during removal and disposal activities. All OSHA rules for the use of respiratory protective equipment must be followed. Workers with beards or unshaven faces will not be permitted to wear half-face respirators, as per OSHA, NIOSH and EPA standards.

385.8 Prior to the start of any removal activity that involves asbestos, the prime contractor and the school district shall approve a pre-construction checklist that provides detailed information about the scope of work, including the following: 1) how the work area will be prepared; 2) protective equipment and clothing to be used; 3) proof that all workers involved in asbestos removal are certified; 4) decontamination procedures for personnel, as needed; 5) abatement procedures to be used; 6) procedures for handling and disposing waste material, final decontamination and cleanup work; 7) job safety, bathroom and sanitary facilities, including on-site shower; 8) site security; 9) record-keeping needs for officials; and 10) hold harmless agreements to be signed by those involved.

385.9 All NESHAP and other regulation filing fees will be submitted to the appropriate agency at the time of notification or filing and are the responsibility of the Prime Contractor. The school district will reimburse the prime contractor upon proof of fee payment (photocopy of check or equivalent).

385.10 Prime contractor will provide copies of original training certificate and most recent refresher certificate for each employee assigned to work on any abatement. Prime contractor will be responsible for cross-referenced checking of subcontractor's certificated employees by picture I.D. (driver's license/photo bank card).

385.11 Since roof abatement does not confine workers in an enclosed work area, only those rules, regulations, and standards that are applicable to roof asbestos abatement will be enforced. However, the prime contractor must include in the written abatement plan all necessary protective measures and practices that minimize worker exposure while on the roof or while working with asbestos materials, including, but not limited to: 1) engineering controls; 2) work practices; 3) respirators; 4) hygiene facilities; 5) protective clothing; 6) decontamination procedures; 7) emergency procedures; and 8) waste disposal procedures. These items should be reflected in the pre-startup checklist.

385.12 Prime contractor will require any subcontractor to provide medical monitoring to any employee or agent (whether or not that agent is working for the subcontractor, the prime contractor, or the school district) exposed to asbestos in excess of background levels during any phase of the abatement process. All medical reports will be in full compliance with OSHA medical surveillance requirements.

385.13 The prime contractor shall coordinate with the school district to notify occupants near the work area who may be disrupted by the roof abatement prior to job commencement. Persons downwind from the roof abatement site will be moved to a safe location.

385.14 Any additional insurance or bonding costs associated with asbestos abatement will not be the responsibility of the school district. Such costs are a normal business expense of the prime contractor and will be covered in the bid response.

385.15 Prime contractor may base planning costs upon results of core testing and roof scans.

386. Asbestos abatement activities, BUR removal and disposal of waste

386.1 If required by authorities, prime contractor will run baseline air samples and area samples prior to and during abatement, with printed results given to the school district.

386.2 Construction area will have the perimeter roped off with warning or caution tape, as required by OSHA. Asbestos warning signs in English and Spanish (or in the language of the Native American tribe if work is performed on a reservation) will be placed as required by law.

386.3 Any daily sign-in sheets required by law will be maintained at the worksite.

386.4 Workers will wear personal protective equipment at all times during abatement. An on- site shower shall be available for workers, unless the use of a double suit meets all legal requirements.

386.5 Prior to roof abatement, one layer of 6 mil polyethylene must be secured to the ground and walkways around the perimeter of the building. This layer must extend no less than six feet out from the building. No asbestos-containing materials may be removed from the roof until it is properly wrapped or contained.

386.6 No roofing material containing asbestos may be thrown from the roof to the ground or into a dumpster. A fully contained and lined chute, or a block and tackle system to gently lower materials to the ground, may be used.

386.7 All OSHA and NESHAP regulations pertaining to safety of workers and emissions must be followed.

386.8 After passing final visual and air tests, waste may be loaded, and job site turned over to workers scheduled to repair or restore the roof. Reestablishment of the work area shall occur only after cleanup procedures and air monitoring has been documented to the satisfaction of the school district. All polyethylene barriers shall be removed and disposed of as required by regulations. No debris shall be buried or burned on the property of the district.

386.9 All waste is to be hauled by a hauler with all required state and local licenses. No disposal-bagged materials may be transported on an open truck. All disposed materials must have the necessary labels and be contained in leak-proof 6 mil disposal bags or fiberboard drums.

386.10 Disposal must occur at a site authorized by the district and that has met all regulatory requirements. All dump site receipts, trip tickets, transportation manifests or other documentation of disposal shall be kept by the prime contractor with copies given to the district. The prime contractor shall provide the district with a complete record of the disposal process, including the names and addresses of the subcontractors, disposal site operator, and hauler. The location of the disposal site(s) and the estimated quantity of asbestos waste shall be included in this report.

387. Project site is located 65 or more miles from the contractor's/subcontractor's yard/home location

388. Asbestos site monitoring.

388.1 Monitor, including air sample collection and testing.

389. Annual or semi-annual roof housekeeping and inspection services

389.1 Inspection includes, but is not limited to, the following: clean and properly dispose of all debris from the roof membrane, gutters and scuppers.

389.2 Repair tears, splits, and breaks in membrane flashings with appropriate materials, loose cleats and clips re-secured, exposed fasteners resealed. Repair base flashings, curb flashings, equipment flashings, drains, drain sumps and scuppers and the roof membrane, as needed. Caulking of reglet as required sealing open areas and voids.

389.3 Dress up reflective coatings on flashings and new repair work.

389.4 Work provided annually or semi-annually on a mutually agreed schedule, priced per location per square footage.

389.5 Professional investigators will conduct the inspection and housekeeping.

390. Price once a year per location if less than 20,000 sq. ft.

391. Price per sq.ft. per year per location if greater than 20,000 sq.ft.

392. Price semi-annual per location if less than 20,000sq. ft

393. Price per sq.ft. semiannual per location if greater than 20,000 sq.ft.

394. Roof leak investigation

394.1 Repair leaking roof, if inspection determines minor repairs will stop the leak

395. Minor repair calls

395.1 When damage or leaks have been discovered and local crews are unable or untrained in repair, the Contractor will dispatch a crew to repair the roof.

395.2 Repairs will be billed at the line item prices in this contract; minor repairs will be billed at an hourly rate if cost is less than the line item. Repair call charges will be above the line item prices.

396. Difficult access or fall restriction surcharge

396.1 In areas where roofs are not accessible through regular means and methods, a project surcharge may be allowed. Surcharges are allowed when men and equipment must be

transported over one or more additional roof areas not being worked on or where fall protection is required in excess of warning lines.

396.2 Any surcharge costs will be determined up front and agreed upon between the buyer and the Contractor and included in the initial cost quotation and purchase order.

397. Excessive hauling

397.1 A hauling fee will be established when an appropriate landfill is more than 50 miles round trip. Hauling fees will be based on a per trip and per mile charge.

397.2 No hauling fees will be charged when landfills are fewer than 50 miles round trip.

397.3 Landfill charges for dumping, if any, will be determined prior to award of a contract. Only the actual fee charged may be billed to the buyer; receipts that clearly indicate the actual fee must be provided. Contractor is encouraged to pay any landfill costs and not pass the cost to the buyer.

397.4 Hauling and landfill costs must be determined prior to start of work and included in the quotation. Only actual costs may be invoiced. Any actual costs over the quotation will not be passed on to the buyer.

398. Work in secured areas or compounds; surcharge

398.1 Secured areas (prisons, military bases, local or state parks, etc.) where access is restricted may require a surcharge on labor, materials, and equipment.

398.2 Any surcharge will be identified in the cost quotation.

399. Additional and occasional supplies, materials, equipment, and services

400. Additional and occasional services Roofing and Building Envelope materials Discount off Retail Price List

400.1 To permit agency members to purchase equipment, materials, and supplies for the roof installation, repair and/or replacement by the agency member's awarded contract installer, manufacturer will provide a complete published price list/catalog with all materials to be offered without services being provided.

400.2 The Offeror's AEPA bid percentage discount off price list will be applied to obtain AEPA price for these items.

401. Alternative Methods of Costing -percent of overhead/markup and profit added to cost

401.1 For the removal and replacement of work items not covered by the bid line items or R.S. Means, the contractor may use an alternative cost method. This method will include but will not be limited to façade, roofing, structural elements, HVAC, utility lines, plumbing associated with project specifications, and electrical work associated with the roof installation and to achieve the required repair scope(s) for member facilities, the prime contractor must hire a properly licensed specialty contractor for such work.

401.2 When possible, if there is a contractor who currently holds a contract with the individual AEPA Participating Entity available, they will be used for such work. The agency/client will issue a purchase order to the contractor for the work. The agency's/client's contractor will cooperate with the roofing contractor to accomplish the work. This transaction will be between the agency/client and their contractor.

401.3 When a specialty contractor or as required to perform the scope of work, the prime contractor will acquire a subcontractor(s) to perform and complete the required work. Depending on type of work and the projects requirements, the contractor will utilize the R.S. Means and/or the alternative cost methods to bill the agency/client. When R.S. means is utilized the prime contractor will provide a summary sheet and worksheet with the appropriate coefficients and discounts included. When alternative cost method is utilized, the prime contractor must provide agency/client a copy of the invoice from the HVAC, plumbing, or electrical contractor, etc. hired for the work.

401.4 In the Offeror's response, it shall submit percentages for: R.S. Means discount, alternative costing overhead and profit, alternative discount off retail price.

402. Discounts Offered Off Alternative Costing Methods (cost plus profit and overhead) Less Rate of Discount

403. Multiplier/factor to be applied to the R.S. Means costs.

404. Cold and bad weather storage - identify extra cost, if any

404.1 Store all materials on platforms, raised off the ground or roof deck and covered with breathable waterproof coverings that have been properly secured.

404.2 Roofing bitumens must always be protected from the weather. Moisture, dirt, snow, and ice must be removed from roofing bitumens before they are heated.

404.3 Store temperature sensitive products in a dry, heated area. Water-based cements, coating materials, caulking, etc. must be protected to prevent freezing. Membrane rolls become less flexible and are susceptible to cracking at low temperatures

405. Deducts and add-ons for in lieu products

Deducts

405.1 When a roof repair is for a temporary building (less than 10 years expected usage), the materials used for a 15- or 20-year lifecycle may not always be wise or cost effective. If an upgrade would increase the life expectancy of a roof from 25 to 30 or more years, the upgrade may be identified.

405.2 Prime contractor may identify deducts and ad-ons for fiberboard, shingles, slate, tile, nailed base, mopped roofing, foam, fiberglass, felts, venting base sheets, steel identified by gauge, and other roof accessories.

405.3 All deducts must be identified in Part F.

405.4 In like manner, any additional upgrades that would increase the lifecycle and reduce the lifecycle costs may be identified in Part F.

Adds

406. Special rented equipment.

406.1 Prime contractor will identify and price the rental cost for any equipment necessary for a specific job. This equipment includes, but is not limited to, cranes, fork trucks, hoists, and other similar equipment.

406.2 The AEPA price for these items will be calculated using the R.S. Means and/or the alternative costing methods.

407. Cold and bad weather application standards

407.1 Use cold or winter grade materials as recommended by the manufacturer (indicate cost of materials in proper sections).

407.2 Prepare materials for application per manufacturer's instructions. Some sheets/felts require relax periods that may be longer in cooler temperatures.

407.3 At the point of application of roofing felt, the bitumen should be applied at the proper equiviscous temperature (EVT). Apply felts close to the mop to prevent premature cooling of the bitumen.

407.4 Properly insulate all bitumen handling equipment (pipes, luggers, dispensers and mop buckets). Keep kettle as close as possible to the point of application of the roofing system.

407.5 If proper application temperatures cannot be attained or maintained, the roof system application should be sealed and shut down until weather permits.

407.6 Cold process adhesives may require heating prior to application in cool weather. Follow manufacturer's instruction to use in-line heat exchangers.

408. Cold and bad weather safety.

408.1 Alert roofing applicators to possible safety hazards due to bulky clothing and slippery surfaces.

408.2 Do not store materials in high piles on the deck avoiding wind and snow dams. Live snow loads may cause deck deflection due to heavy loads.

408.3 Maintain good housekeeping on roof deck at all times; debris may be hidden by snow and may result in trip hazards.

408.4 Do not use open flames to heat or thaw adhesives.

408.5 Hourly service rates for providing additional and/or miscellaneous services on a time and materials basis as requested. If services are provided by Contractor's staff, the rate bid will be utilized plus the individual AEPA state multiplier. If services are to be provided by independent firms/subcontractors, then the alternative pricing method will be utilized as identified in 401. and 402. above.

409. Professional Services

409.1. The fee for professional services may include, but is not limited to, investigation, design, engineering, review and stamping of drawings, specifications writing and review, and structural reports, as may be required by local jurisdictions.

410. Structural analysis and engineering services

410.1 Must be highly qualified and experienced in working with the type of building structure and roofing system involved.

410.2 If required by the state in which the project is located, be registered, and hold the appropriate license(s).

410.3 If an owner suspects a structural deficiency as it relates to the building envelope including roofs, walls, trusses, joists, etc., a licensed architect, engineer or roof consultant may be required.

410.4 The fee for such a review, including design and sealing of drawings, specifications, and structural reports, will be as required in the local jurisdiction.

410.5 Minimum hourly and daily costs for registered and licensed architects, roof consultants or engineers will be provided.

411. Weather day's per Diem

411.1 On projects where overnight per diems are being charged, prime contractor shall be allowed to charge for crews per diem for days where crews were not allowed to work due to poor weather. If crews were allowed to work fewer than 3 hours in a 24hour day, per diem may be charged.

411.2 Poor weather days must be recorded and reported to the buyer each week. Any days not reported during a single week (Sunday through Saturday) will not be allowed.

411.3 Contractor shall not charge for weather days when days lost are fewer than one crew day per 200 squares.

412. Architect/professional design services

412.1 Must be highly qualified and experienced in designing and developing roofing structures and systems that may be applicable for the building types and environmental conditions found within the project site.

412.2 If required by the state in which the project is located, be registered, and hold the appropriate license(s).

413. Roofing Consultant

413.1 Must be highly qualified and possess the training, certification, background and experience required by the roofing industry and/or other associated organizations that are recognized by

the public, commercial and industry as meeting and exceeding national/international standards.

413.2. If required by individual states, possess the required educational background, certifications and endorsements.

414. Labor Rate for Roofer

414.1 Must possess the background, experience and be factory trained/certified/authorized to install, maintain and/or make repairs on the type of roofing system found in the individual project.

414.2 If required by the state in which the project is located, hold the appropriate tradesman's license(s).

11. Submittal and Substantiating Documentation

11.1 Offeror must, through its response, clearly identify the type, kind, and level of products offered with their intended applications found within the AEPA Member states that have indicated an interest to participate. The response shall include:

11.1.1 The products offered with manufacturer's name(s).

11.1.2 If Offeror is not the roofing systems'/products' manufacturer, for each manufacturer, provide the required documentation to demonstrate their relationship with awareness of and willingness, ability and capacity to perform as a party to this solicitation and indicating the Offeror is a manufacturer's authorized and certified distributor, installer and warranty work provider.

11.1.3 The various kinds, types, levels of products offered from each.

11.1.4 Submit for each of the major product components MSDS sheets.

11.1.5 For each of the roofing systems/major components in which the Offeror is not the manufacturer, provide the manufacturers/supplier's name, component and the composition/specs of the component(s).

11.1.6 Submit certified copies of independent (third-party) laboratory reports on ASTM tests on the roofing systems/major components/products offered.

11.1.7 Submit samples of the roofing systems/protective coatings manufacturers' warranty to be provided to the owner/client covering defects in materials, workmanship, excessive wear, leaks and any other feature which is not deemed ordinary wear for the type of system/product and during the systems'/products' lifecycle or for a period of twenty (20) years from the date of Substantial Completion, and the method utilized by the manufacturer to verify that their onsite representative has inspected the installation and that the work conforms to the manufacturer's specifications and requirements for the warranty to be issued.

11.1.7.1 Provide the necessary documentation and evidence that the two (2) year mandatory labor, supplies and warranty can be provided and delivered.

11.1.7.2 Provide documentation demonstrating the roofing system's manufacturer(s) warranties are supported by an insurance policy, performance bond or certified warranty reserve for the full twenty (20) year period.

11.1.7.3 Provide a sample of the distributors'/installers'/subcontractors' (providers') warranty required by the Offeror to ensure AEPA, its members and their clients that the provider/contractor will cover defects in the work performed and installation workmanship, and further warrant that

the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's on-site representative.

11.2 Submit detailed information and documentation describing the network and/or distribution system to be utilized to provide all aspects of the scope of work as defined within this solicitation (market, consulting, delivery, install, inspections, warranty work, maintenance and repair, etc.).

11.2.1 Provide complete information identifying the individual/distributor/installer or any subcontractor that will be utilized to work with and perform the services proposed to be offered in response to this solicitation. Please include the AEPA state(s) for which they will be responsible and from where they will be dispatched (home location).

11.2.2 Submit documentation and evidence that the products proposed, and services offered in response to this solicitation have been delivered, installed and supported in all the AEPA member states that have indicated an interest in participating in this AEPA contract, if approved.

11.2.2.1 For each of the states indicating an interest provided in Part C of this solicitation, list one (1) project performed, which was completed within the last year, one project within the last two (2) years and one project within the last three (3) years, for a total of three projects per state. Provide the following for each:

11.2.2.1.1 The general scope of work for each project, project cost, and the type of roofing or protective coating system utilized.

11.2.2.1.2 The manufacturer's product used for each project listed.

11.2.2.1.3 The public institution's/agency's name, address, phone number, contact person's name and title for each project.

11.2.3 Provide a narrative of your company's policies, procedures and strategies to ensure quality control and response to concerns before, during and after the project. Indicate what follow- up, review and oversight process your management team has in place to ensure customer satisfaction.

12. Price Submittal and Considerations

12.1 The Offeror must provide a complete listing of all products and services that it is proposing to offer under this solicitation. All products and services pricing must be determined by one of pricing methods defined below.

12.1.1 Price sheets and/or catalogs – For those products and services that are to be priced using a manufacturer's published price list or product catalog, provide complete price list and/or catalogs that include product number, product description, unit of measure, the item's price and what that price includes (delivery, installation, etc.). The Offeror will indicate within their response the amount of discount to be applied to all items offered to AEPA and the multiplier/factor that is to be applied to arrive at each of the individual AEPA state agency's price. Within the terms of this IFB, different manufacturers/products can have different AEPA discounts if the discounts are clearly stated within the Offeror's response. If a price list or MSRP is not available, then the Offeror must utilize one of the other established pricing methodologies.

12.1.2 Individual state multiplier/factor - AEPA understands the basic cost of the products/ services listed on a published price list indicates the cost of obtaining, manufacturing, and preparing the products/services to ship to the project site. Due to the cooperative nature of this solicitation (opportunity of 30 states) and the potential volume, the Offeror will offer a discount on this price to AEPA as a whole. It is also understood that the cost incurred by the AEPA Offeror to deliver, store, and install the product/service to an individual project site will differ depending on the AEPA state in which the project site is located and the distance from the Offeror's/Provider's home location. Therefore, for each of the AEPA states listed herein, provide your multiplier/factor to be applied to the base AEPA price after the AEPA discount has been applied to the published price list to arrive at the individual AEPA state price. Example: If the published price on the published price list is $1,000 and the AEPA discount is twenty percent (20%), the AEPA price would be $1,000 x .80 (100%-20%=80%) = $800. If the Offeror bid a state multiplier/factor of 1.02%, to arrive at the AEPA state agency's price would be ($800 x 1.02) = $816.

12.1.3 R.S. MEANS costing method - The current online version will be the basis for all quotes and proposals based on R.S. Means. **Note: It is AEPA's intention that this methodology be utilized only if the products/services required for the project are not covered by the Offeror's published list.**

12.1.3.1 For individual construction cost, items within the R.S. Means cost-book (including labor, overhead and profit) will be charged to the owner/client. Please note that costs relating to non-construction items/assemblies (General Condition items) such as season of the year; home office costs; insurance; project management and supervision; office and storage trailers; mileage, per diem; personal safety equipment; weather conditions; etc., must be included and will not be allowed as part of the Contractor's R.S. Means price quote/proposal, because these items are covered either by the Offeror's published price list and/or their identified individual AEPA state multiplier/factor.

12.1.3.2 AEPA has also found from past experience that the R.S. Means costs, depending on the individual Offeror, may provide/allow more or less compensation than is required for the Offeror to cover its actual costs. Therefore, AEPA has established an R.S. Means multiplier/factor that the Offeror bids to adjust the R.S. Means costs so that they are in line with what is needed to meet its costs. This R.S. Means multiplier/factor is applied to the R.S. Means cost proposal to achieve the AEPA cost for the items. A bid R.S. Means multiplier/factor of 95% indicates that the Offeror will charge the Means total item cost times .95 as the billable amount. A bid multiplier/factor of 105% indicates that the Offeror will charge the R.S. Means Total Cost times 1.05 as the billable amount. Note the following:

12.1.3.3 When using the R.S. Means assembly cost items, the Contractor must for each individual cost item/assembly indicate and document any of the R.S. Means special factors that are applicable, including factors affecting cost, quality of materials, productivity of labor force, size of project and location. These items must be clearly stated and documented as part of the Contractor's cost proposal. The owner/client reserves the right to accept or reject any of the items that it determines to be non-applicable.

12.1.3.4 No R.S. Means (General Conditions Items) such as contract management/supervision, home office costs, travel, per diem, office trailers, storage facilities, etc., are to be included in a R.S. Means cost proposal unless it has been requested and approved by the owner/client.

12.1.3.5 Any costs associated with permits, state gross receipts and tribal taxes, performance and payment bond costs and other applicable reimbursable costs approved in advance by the owner/client will appear as separate line items on the Contractor's quote/cost proposal.

12.1.3.6 The Contractor's R.S. Means bid factor/multiplier may be adjusted on the Contractor's contract anniversary date in accordance with the price adjustment terms and conditions of this solicitation. Such requests will be considered and evaluated by comparing the request with the escalation/de-escalation of the marketplace as measured by the Construction Cost Index (CCI) published in the ENR (formerly known as Engineering News and Record).

12.1.3.7 Due to the R.S. Means cost taking into consideration the location of the project the Offeror/Contractor will not be allowed to apply the individual state multiplier/factor to this cost.

12.1.4 Alternative Costing Method - If there are products and/or services required for a project covered by this solicitation that are not covered by the Offeror's published price lists and/or R.S. Means, then the cost of these items will be calculated by utilizing the alternative costing methodology. The items price will be obtained by issuing, receiving and evaluating three (3) written quotes prior to being included into any quote/cost proposal and/or final contract documents. The owner/client reserves the right to accept or reject any quote or proposal including such items and may obtain these items through other procurement means (other existing contracts). The AEPA price will be determined by utilizing two percentages. The Offeror will submit bids for two percentages: the alternative method overhead and profit and the alternative method percentage of AEPA's discount to be applied to the items alternative method's retail price.

12.1.4.1 Based on the most advantageous and cost-effective quote received by the Contractor, the Contractor will apply its normal and customary overhead and profit percentages to the total cost submitted by the subcontractor and add that amount to obtain the normal and customary retail price. (Item cost multiplied by percent for overhead/profit equals amount of profit and overhead to be added to item cost equals retail price.)

12.1.4.2 Taking the normal and customary retail price as established in item 12.1.4.1 above, the Contractor will apply the AEPA's alternative method's discount percentage bid and subtract this amount from the normal and customary retail price to obtain the AEPA price (item retail price multiplied by percent of discount equals amount of discount to be subtracted to obtain AEPA price).

12.1.4.3 Due to the way the alternative method of costing is calculated, the Offeror/Contractor will not be allowed to apply the individual state multiplier/factor.

12.1.5 Sole Source - If products or services are required as part of the performance under this contract that can only be obtained and/or manufactured from a single source and fall under the sole source provision that is found within most states procurement codes, the Contractor must provide the owner with the necessary documentation to substantiate a sole source justification. To calculate the AEPA price for sole source items, the Offeror/Contractor shall utilize the same calculations identified in 11.1.4.1 through 11.4.1.2.

12.2 The cost evaluation for this solicitation will be based on a point system, with points being awarded for being low to high bidder for each cost evaluation item that is identified within the bid's cost evaluation submittal. If an Offeror leaves out/fails to provide a bid for an individual item, AEPA will allot zero (0) points to that item, and if awarded a contract, that individual item cannot be used in providing products or services. The low bidder will receive the full point value and all other bidders will receive points calculated (Lowest Bid / Other Bid) x point value.

12.2.1 If there is an item(s) within the cost submittal that the Offeror intends to provide at NO COST and/or the cost is included as part of another item, the Offeror must indicate NO COST in the appropriate column.

12.2.2 As noted within this solicitation, AEPA prefers to award a contract to a vendor who can provide a complete and comprehensive turn-key solution. Also, it is noted that AEPA understands that there may be national manufacturers/distributors who specialize in a particular and/or specific (single) type of roofing/protective coating system and, based on their response submitted and comparing the other systems offered within the same type of system, AEPA reserves the right to make a multiple award to a respondent who offers a particular/specific (single) type of system/product as long as:

12.2.2.1 The respondent is determined to be a responsive bidder.

12.2.2.2 It is determined to be advantageous and in the best interest of the AEPA Member State Agencies and their clients.

12.2.2.3 By making an award, it will allow the individual AEPA Members' facility owner/ clients greater options and a better opportunity to meet their individual facilities' needs and requirements.

12.2.2.4 Respondent may opt to include any freight charges in their line-item pricing or may choose to provide their freight policy and delivery charges separately while complying with Part B., 3, General Terms & Conditions, Delivery Terms, Conditions, and Requirements, 5. Shipping.

13. Pricing

The Bidder must provide their pricing as requested utilizing the various pricing methodologies specified in this section. The Vendor Partner agrees that the price for any item bid or offered on this contract will be uniform for all states, and that any differences in pricing are due to state specific installation and labor costs, AEPA Member Agency's Administrative Fee, etc. The Bidder/Vendor Partner must agree that they will offer prices equal to or better than what they ordinarily offer to individual entities or cooperatives with equal or lesser volume.

A. Line-Item Pricing: Line-item pricing is utilized when products and/or services that are broken down in detail by element, component, product categories, product type and each product and/or service is presented as an individual item which needs to be combined with other items to make up a final project or solution. The Bidder offers firm pricing for specific line items in response to this bid; a project's cost is derived by the Vendor Partner preparing and providing a quote based on the project's terms, conditions and requirements based on the line item pricing provided in the bid. The information provided in this bid for each item includes: Product Category, Product Description, Manufacturer, Manufacturer SKU, Vendor SKU, Unit of Measure, Item List Price, AEPA Bid Price.

i. **Fixed prices:** Prices bid shall be firm until each anniversary date of contract, unless there is an occurrence of one or more economic price adjustment contingencies outlined in the bid. Fixed price offers shall include prices for any and all items.

ii. **Routine Price Adjustments (Without Economic Price Adjustment):** Vendors may request adjustments to the prices by submitting a fully documented written request to the AEPA Category Committee Chairperson. The request must specifically detail and document the cause and/or reason for price changes and include any supporting documentation (manufacturer's letter, indexes, etc.). All price changes require approval by the AEPA Category Committee.

iii. **Unpredictable Economic Price Adjustment:** If economic price adjustment contingencies occur, Vendor Partner may submit a fully documented request (manufacturer's letter, indexes, etc.) for a price adjustment to AEPA Category Committee for review and approval by the committee. The documentation must substantiate the cause and/or reason for the requested price increase and demonstrate that it was unpredictable at

the time of bid submittal and/or contract renewal and out of the Vendor Partner's control. Pricing will take effect upon approval.

iv. **New Products/Services:** Vendor Partner may submit new products or technologies that are within the original scope of work for the bid, to be added to the contract pending review and approval of the AEPA Category Committee. Requests should be submitted to the AEPA Category Committee for review and written approval.

B. Automated System for Pricing (ASP): The method consisting of an ASP and/or software application (RSMeans, Gordian) that is self-contained and consists of a turn-key solution that includes a complete line-item listing of all of the products, supplies, materials, equipment, services, accessories and options with their description, specifications, terms, conditions and associated pricing for each item, sub- assemblies and/or assemblies. The Bidder provides a percent of discount or fixed multiplier/factor to be applied to total project cost to allow for individual state conditions and requirements and to arrive at the AEPA price.

C. RSMeans (Construction Related Bids only): It is important for Vendor Partners to breakout all costs (quantity and price) of all items listed under RS Means or an Alternative Pricing method. This includes all quoted items not on the approved AEPA bid submittal. The following are minimum requirements for using RSMeans for quoting projects to AEPA Member Agencies:

i. The Contractors must use the current online version and standard cost data. Only the following cost data titles will be accepted:
   a. Building Construction Cost Data Book
   b. Facilities Construction Cost Data
   c. Facilities Maintenance & Repair Cost Data
   d. Site Work & Landscape Cost Data Book

ii. All work proposed under RSMeans must use RSMeans format, even if subcontractors are used.

iii. An RSMeans spreadsheet must be submitted to substantiate the quote given to the AEPA Participating Entity. The spreadsheet columns must reveal the full RSMeans number and a sufficient amount of the description. This also applies to change orders.

iv. Pricing must be done by Location codes. National Average will not be allowed. In order to choose the "closest" location code, the first three (3) numbers of the zip code will be used to determine the city location index in the Participating Entity's state.

v. The AEPA contract holder factor, bonding cost, AEPA discount and taxes if applicable must be shown as separate line items at the bottom of the RSMeans spreadsheet. This information can be shown on a separate summary sheet. The summary sheet must start with the RSMeans spreadsheet total and show the detail for each of the items stated above. This detail will be provided to that AEPA State Agency and the AEPA Buyer as required.

vi. All change orders which list items covered by RSMeans must be supported by an RSMeans spreadsheet.

D. Alternative Method of Costing: This method covers any product and/or service not covered by catalog pricing, published price list, line-item price list, automated system for pricing, or is a product and/or service due to the projects or applications specifications, conditions and /or requirements that need to be custom designed, developed, manufactured and/or produced to meet the requirements of an individual, project or sole source. The alternative pricing is calculated as follows:

i. The Bidder must prepare, issue and receive three written quotes from available suppliers and select the supplier that offers the products and services that meet the stipulated requirements and specifications and the most cost effective solution. All quotes must be made available upon request.

ii. The Bidder must indicate the percent of overhead and /or markup as part of their response to be added to these costs to obtain the normal and customary retail price.

iii. The AEPA price is calculated by taking the product and services to cost to the Contractor plus the indicated percent of profit/overhead to equal the normal and customary retail price. The

Contractor will then subtract the approved AEPA discount to obtain the AEPA price. Example: item cost $1,000; percent of profit/overhead of 20% equals retail price of $1,200; less the AEPA discount of 10% or $120 equals the AEPA price of $1,080.

E. Part F - Pricing Workbook

Pricing shall be completed on the provided pricing sheets in two (2) Microsoft Excel Workbooks with the individual tabs to be completed as follows:

i. F.1 Base Bid Price IDIQ (Required), All product offering will need to be added.
ii. F.2 State Multiplier & Labor Rates (Required)
iii. F.3 Volume Discounts (Optional)
iv. F.4 Demonstration Project Quote (Required)

Bid pricing will be evaluated on a combination of items from both the Base Bid Pricing and State Multiplier pricing submittal. AEPA will also include as part of the evaluation process a hypothetical specified demonstration project on a site ready for installation at a specific location. Bidder must respond with submitted line item pricing augmented by RS Means where needed. This exercise will be used to compare project price between bid responses.

14. Progress Payments

Progress payments are allowed on purchases for goods and services under the following conditions: The Buyer and the Vendor Partner agree to the terms of the progress payments prior to issuing a purchase order; the purchase order describes the amounts to be paid and the date of payment; the Buyer has a satisfactory method of verifying progress described in writing in a letter or on the purchase order; that payments will only be made when actual goods and/or services are verified/received; and that any such payments be made in full compliance of Buyer's local board rules and any and all other applicable state rules and regulations.

15. **Warranty**

Vendor Partner warrants that all commodities, supplies, materials, equipment, software and service delivered under this contract shall conform to the specifications of this contract. All items should carry a warranty equal to the intended life cycle or a minimum 20-month manufacturer's warranty that includes parts and labor unless otherwise specified and agreed to. The manufacturer has the primary responsibility to honor a manufacturer's warranty; a distributor or dealer agrees to assist the purchaser reach a solution in a dispute with the manufacturer over a warranty's terms. Any extended manufacturer's warranty will be passed on to the Buyer. For example, if a project component has a twenty-five year warranty, but the project component is part of a turnkey system that has a twenty-year warranty, the twenty-five year warranty must be honored by the manufacturer and the Vendor Partner. All extended warranties must be passed on, without exception. If, upon discovery, the Vendor Partner charges a Buyer for a replacement part that the Vendor Partner actually received at no cost under a warranty, the Vendor Partner will rebate the amount billed and the Buyer reserves the right to cancel the contract.

16. **Evaluation**

The AEPA Committee for this category will evaluate bid responses based on the entire response, and according to the criteria detailed in Part A for AEPA's definition of Responsive and Responsible bids. A recommendation may be made to recommend a single response, or to recommend multiple bidders based on differentiation of product or service between bidders. AEPA will vote as a whole to accept or not accept a committee's recommendation. Once accepted, each recommended bid response will go to the individual states for contract approval. Please note, pricing evaluation may include other considerations, including the total cost of the acquisition and whether the Proposer's offering represents the best value.

The evaluation committee may consider such factors as life-cycle costs, total cost of ownership, quality, and the suitability of an offering in meeting AEPA members' needs.

Evaluation Criteria
Cost Evaluation
Complete Response to Bid
Conformance to Bid Terms and Conditions
Pricing Equal to or Better Than That Offered to Individual Entities or Cooperatives with Equal or Lesser Volume
Quality and Suitability of products offered
Marketing plan
Financial Viability
Demonstrated Track Record of Performance in the public marketplace
Value Added attributes
Commitment to lead with the AEPA contract

In addition, the Evaluation committee will use the following criteria when evaluating the responses. Vendors Do Not have to fill out this table. This is for informational purposes only.

Criteria for Selecting 025-D Awarded Contractor	
Criteria	
Bonding capacity and Ability to Serve AEPA Membership	The overall goal and intent of this IFB effort is to furnish and install and repair the full building envelope and Roofing Related Services. The service and distribution area are to have the potential to serve the total geographic area of all 30 AEPA states. Respondents must demonstrate their ability, capacity, and available resources to provide the proposed products and services to **90%** of the AEPA Member Agencies indicating an interest in participating in the categories being solicited unless otherwise noted in Part A – Technical Specifications of the category being solicited.
	Yes_____ No_____
Completeness and degree of understanding of the demonstration project	Respondent prepared a proposal with all documents necessary to execute the project per the terms and conditions of AEPA IFB #025-D. Respondent used their bid line items and supporting R. S. Means construction cost data to prepare a complete line-item proposal and supporting construction documents for the demonstration project?
	Yes_____ Partially Answered_____ No_____
	Respondent provided an executive summary detailing the projects and detailing compliance with Tab 2.
	Yes_____ Partially Answered_____ No_____

	The design related to this demonstration project was for systems with a life of 20 or more years.
	Yes_____ No_____
	Respondent certified code compliance for UL 790 Class A and wind uplift for the building located in the 29501-zip code, South Carolina. Respondent provided a schedule of 70 working days with substantial completion in 63 days. Respondent created a site-specific safety plan. Respondent provided a plan for material setup and security of material. Respondent provided covered walkways into entrance(s) of the building.
	Yes_____ Partially meets_____ No_____
	Respondent provided stamped drawings due to the location being in an active hurricane zone, certifying the roof system meets the criteria for the location.
	Yes_____ No_____
	Respondent provided a sample certificate of insurance naming the school district and the AEPA as additional insured.
	Yes_____ No_____
	Respondent provided a sample payment and performance bond for the project.
	Yes_____ No_____
	Respondent stated that the local prevailing wage will be paid.
	Yes_____ No_____
Freight	Respondent provided their freight policy and delivery charges.
	Yes_____ No_____
Discount off of materials	Per page 22 of the Terms and Conditions, Respondent agreed that they will not offer or provide a better price to any individual entities or cooperatives with equal or lesser volume than that through AEPA.
	Yes_____ No_____
Multiplier (discount) off of RS Means	Respondent provided a percent off discount or fixed multiplier/factor to be applied to total project cost to allow for individual state conditions and requirements and to arrive at the AEPA price.
	Yes_____ No_____

Warranty reserves	Per section 11.1.7.2 on page 141 of the Specification, Respondent provided documentation demonstrating the roofing system's manufacturer(s) warranties are supported by an insurance policy, performance bond or certified warranty reserve for the full twenty (20) year period.
	Yes_____ No_____
References—ability to handle large projects	Respondent provided references with contact information demonstrating the respondent's ability to perform work in 90% of the AEPA member states.
	Yes_____ No_____
Completeness of answering the specifications requirement	Completeness of answering pricing of all required lines in Tab IFB 025-D pricing F.1 pricing workbook
	Yes_____ Partially Answered_____ No_____
Local subcontractors to perform in each member state	All local subcontractors in each state are listed and have been thoroughly vetted to perform work.
	Yes_____ No_____
Support staff—ability to service/comply with the requirements of the contract	Respondent demonstrated its ability, capacity and resources to acquire, manufacture, deliver, construct, install, services and support all of the procurement functions and activities involved in a national contract of this nature.
	Yes_____ No_____
Indemnification Response for AEPA Membership	Respondent agreed to indemnify, defend and save harmless AEPA, its Members, Participating Entities, its employees from any and all claims, demands, suits, proceedings, loss, cost and damages of every kind and description, including any attorney's fees and/or litigation expenses, which might be brought or made against or incurred by AEPA, its Members, Participating Entities, its employees on account of loss or damage to any property or for injuries to or death of any person, caused by, arising out of, or contributed to, in whole or in part, by reasons of any act, omission, professional error, fault, mistake, or negligence of Vendor Partner, its employees, agents, representatives, or Subcontractors, their employees, agents, or representatives in connection with or incident to the performance of this agreement, or arising out of worker's compensation claims, unemployment compensation claims, or unemployment disability compensation claims of employees of Vendor Partner, and/or its Subcontractors or claims under similar such laws or obligations. Vendor Partner's obligation under this section will not extend to any liability caused by the sole negligence of AEPA, its Member Agencies, Participating Entities, its employees.
	Yes_____ No_____
Bid Bond received	Respondent provided a bid bond as required.

	Yes_____ No_____
Volume Discounts	Respondent offered additional volume discounts off of list price.
	Yes_____ No_____