Fort Bend County Tabulation
Bid 20-088
Roof Replacement Projects at Various Locations

Recommendation: Award Cinco Ranch Branch for $329,000 and Missouri City Branch Library for $223,000 to CS Advantage USDD, Inc.; Bob Lutts Fulshear Branch Library to Gutier LLC, for $151,760; Sugar Land Branch Library for $67,800 and Boys and Girls Club for $139,333 to Strategic Roofing Solutions LLC; 5th Street Community Center to Brazos - Valley Division, LLC dba Brazos Industries for $76,029
Funding: Capital Improvement Project

Vendor	A&E Tech Resp dba Restoration Services, Inc., Houston		Brazos - Valley Division, LLC dba Brazos Industries, Clute		CS Advantage USDD Inc., College Station		Gutier LLC, Sugar Land		P2W Investments, LLC dba 1st Choice Commercial Roofing, Tomball		Royal American Services, Inc., Bellaire		Sea-Breeze Roofing, Inc., Houston		Strategic Roofing Solutions LLC, Houston		Texas Claremont Property Company, Inc., Bellaire	
	Form 1295																	
			Yes		Yes		Yes								Yes			
Location	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**	**Pricing**	**Days to Complete**
Cinco Ranch Branch Library Recover Base Bid	$327,283.00		$368,728.00		$245,000.00	60	$276,066.00		$249,681.00	30	$399,916.00	80	$346,133.00		$275,400.00	60	$329,669.35	28
Alternate 1, Additional pricing for Full Reroof	$72,094.00		$145,104.00		$84,000.00	60	$184,732.00		$97,026.00	45	$473,603.00	90	No Bid		$111,988.00	90	$379,792.10	30
Total:	$399,377.00		$513,832.00		$329,000.00		$460,798.00		$346,707.00		$873,519.00				$387,388.00		$709,461.45	
Bob Lutts Fulshear Branch Library Maintenance Repairs Base Bid	No Bid		$63,446.00		$35,000.00	30	$35,546.00		$32,420.00	14	No Bid		$62,944.00		$55,900.00	30	$51,031.50	18
Alternate 1, Additional Pricing for Full Reroof	No Bid		$106,009.00		$173,000.00	120	$116,214.00		$140,000.00	30			$178,532.99		$189,100.00	90	$186,892.25	26
Total:			$169,455.00		$208,000.00		$151,760.00		$172,420.00				$241,476.99		$245,000.00		$237,923.75	
Sugar Land Branch Library Maintenance Repairs	$19,320.00		$33,391.00		$25,000.00	30	$10,794.00		$14,420.00	14	No Bid		$19,313.00		$7,800.00	30	$57,430.10	5
Alternate 1, Additional Pricing for Repairs	$89,023.00		$138,327.00		$90,000.00	60	$62,286.00		$95,000.00	30	No Bid		No Bid		$60,000.00	30	$306,966.05	16
Total:	$108,343.00		$171,718.00		$115,000.00		$73,080.00		$109,420.00						$67,800.00		$364,396.15	
5th Street Community Center Full Reroof Base Bid	No Bid		$76,029.00		$113,000.00	90	$88,291.00		$225,000.00	30	No Bid		$190,120.00		$85,150.00	45	$116,944.75	14
Alternate 1, Additional Pricing for Repairs	No Bid		$45,258.00		$60,000.00	90	$70,726.00		$56,405.00	45	No Bid		No Bid		$64,000.00	60	$236,276.13	28
Total:			$121,287.00		$173,000.00		$159,017.00		$281,405.00						$149,150.00		$353,220.88	
Missouri City Branch Library Recover Base Bid	No Bid		$312,604.00		$156,000.00	60	$238,697.00		$222,150.00	30	$319,392.00	70	$262,972.00		$239,800.00	60	$230,238.63	24
Alternate 1, Additional Pricing for Full Reroof			$103,563.00		$67,000.00	70	$126,417.00		$77,184.00	45	$376,247.00	80	No Bid		$89,332.00	90	$271,260.56	28
Total:			$416,167.00		$223,000.00		$365,114.00		$299,334.00		$695,639.00				$329,132.00		$501,499.19	
Fort Bend Boys and Girls Club Full Reroof Base Bid	No Bid		$146,706.00		$160,000.00	90	$148,674.00		$172,000.00	30	No Bid		$249,094.00		$139,333.00	60	$146,468.31	14

Additional Bid Pricing for Unforeseen Repairs									
Additional Items	**A&E Tech Resp dba Restoration Services, Inc., Houston**	**Brazos - Valley Division, LLC dba Brazos Industries, Clute**	**CS Advantage USDD Inc., College Station**	**Gutier LLC, Sugar Land**	**P2W Investments, LLC dba 1st Choice Commercial Roofing, Tomball**	**Royal American Services, Inc., Bellaire**	**Sea-Breeze Roofing, Inc., Houston**	**Strategic Roofing Solutions LLC, Houston**	**Texas Claremont Property Company, Inc., Bellaire**
Remove and replace wet or deteriorated insulation board, price per square foot	$5.00	$4.00	$5.00	$8.50	$9.00	$5.00	$2.50	$4.50	$15.50
Remove and replace single-ply membrane to match existing, price per board foot	$8.00	$6.00	$10.00	$5.00	$9.00	$20.00	$175.00	$4.50	$14.00
Remove and replace deteriorated LWC roof deck, price per square foot	$25.00	$9.00	$5.00	$10.00	$15.00	$12.00	$2.40	$7.50	$20.75
Remove and replace damaged or deteriorated metal pan, price per square foot	$30.00	$12.00	$10.00	$18.00	$25.00	$75.00	$9.00	$8.50	$25.75
Remove and replace deteriorated nailers, price per board foot	$12.00	$3.50	$8.00	$8.00	$22.00	$4.50	$9.00	$5.00	$7.50
Remove and replace deteriorated wood decking, price per square foot	$20.00	$4.00	$4.00	$9.00	$5.00	$6.50	$7.50	$4.50	$18.75
Provide and install through-wall system w/3-course brick removal, price per linear foot	$130.00	$125.00	$120.00	$220.00	$25.00	$125.00	$120.00	$110.00	$185.00
Provide and install through-wall flashing with EIFS removal/repair, price per linear foot	$150.00	$90.00	$100.00	$65.00	$25.00	$200.00	$120.00	$85.00	$67.00
Remove and replace damaged or rusted metal decking, price per square foot	$40.00	$12.00	$10.00	$11.00	$25.00	$15.00	$9.00	$8.50	$165.00
Provide and install new overflow scupper per details, price per scupper	$550.00	$400.00	$500.00	$425.00	$225.00	$800.00	$275.00	$450.00	$45.00

JKD Industries LLC Disqualified: Did not provide proof of insurance and did not provide pricing on County's pricing page.

Fort Bend County, Texas
Invitation for Bid

Roof Replacement Projects at Various Locations for Fort Bend County
BID 20-088

SUBMIT BIDS TO:

Fort Bend County
Purchasing Department
301 Jackson
Richmond, TX 77469

Note: All correspondence must include the term "Purchasing Department" in address to assist in proper delivery.

SUBMIT NO LATER THAN:

Tuesday, July 7, 2020
2:00 PM (Central)

LABEL ENVELOPE:

BID 20-088
ROOF REPLACEMENT PROJECTS

ALL BIDS MUST BE RECEIVED IN AND TIME/DATE STAMPED BY THE PURCHASING OFFICE OF FORT BEND COUNTY BEFORE THE SPECIFIED TIME/DATE STATED ABOVE.

BIDS RECEIVED AS REQUIRED WILL THEN BE OPENED AND PUBLICLY READ.

BIDS RECEIVED AFTER THE SPECIFIED TIME, WILL BE RETURNED UNOPENED.

Results will not be given by phone.
Results will be provided to bidder in writing after the Commissioners Court awards.

Requests for information must be in writing and directed to:
Cheryl Krejci, CPPB
Senior Buyer
cheryl.krejci@fortbendcountytx.gov

Vendor Responsibilities:

- Download and complete any addendums. (Addendums will be posted on the Fort Bend County website no Later than 48 hours prior to bid opening)
- Submit response in accordance with requirements stated on the cover of this document.
- DO NOT submit responses via email or fax.

Prepared: 6/8/20
Issued: 6/15/20

COUNTY PURCHASING AGENT
Fort Bend County, Texas

Vendor Information

Jaime Kovar
Interim County Purchasing Agent

Office (281) 341-8640

Legal Company Name (top line of W9)	Gutier LLC
Business Name (if different from legal name)	
Federal ID # or S.S. #	47-2318149
DUNS #	07-302-8897
Type of Business	☑ Corporation/LLC ☐ Partnership ☐ Sole Proprietor/Individual ☐ Tax Exempt Organization
Age in Business?	6
Publicly Traded Business	☑ No ☐ Yes Ticker Symbol _____
Remittance Address	12930 Dairy Ashford Rd #903
City/State/Zip	Sugar Land, TX 77478
Physical Address	12930 Dairy Ashford Rd #903
City/State/Zip	Sugar Land, TX 77478
Phone/Fax Number	Phone: (832) 830-8292 Fax: _____
Contact Person	Jorge A. Mancilla
E-mail	jorge.mancilla@gutier.com
Check all that apply to the company listed above and provide certification number.	DBE-Disadvantaged Business Enterprise ☑ Certification # 20-2-13402 SBE-Small Business Enterprise ☑ Certification # 20-2-13402S HUB –Texas Historically Underutilized Business ☑ Certification # 1472318149200 WBE-Women's Business Enterprise ☐ Certification # _____
Company's gross annual receipts	<$500,000 ☐ $500,000-$4,999,999 ☑ $5,000,000-$16,999,999 ☐ $17,000,000-$22,399,999 ☐ >$22,400,000 ☐
NAICs codes (Please enter all that apply)	23621, 236210, 23622, 236220, 238, 23811, 238110, 23816, 238160, 23817, 238170, 238910, 238990
Signature of Authorized Representative	
Printed Name	Jorge A. Mancilla
Title	Principal
Date	7/7/2020

THIS FORM MUST BE SUBMITTED WITH THE SOLICITATION RESPONSE

1.0 GENERAL REQUIREMENTS:

1.1 Read this entire document carefully. Follow all instructions. You are responsible for fulfilling all requirements and specifications. Be sure you understand them.

1.2 General Requirements apply to all advertised bids; however, these may be superseded, whole or in part, by the scope, special requirements, specifications, special specifications or other data contained herein.

1.3 Governing Law: Bidder is advised that these requirements shall be fully governed by the laws of the State of Texas and that Fort Bend County may request and rely on advice, decisions and opinions of the Attorney General of Texas and the County Attorney concerning any portion of these requirements.

1.4 Bid Document Completion: Fill out, initial each page, sign, and return ONE (1) complete bid document to the Fort Bend County Purchasing Department. An authorized representative of the bidder must sign the Contract Sheet. Do not complete the date at the top of the contract sheet. The bid document must be in a sealed envelope marked with the appropriate bid number and title. The contract will be binding only when signed by the County Judge, Fort Bend County and a purchase order authorizing the item(s) desired has been issued. The use of correction fluid is not acceptable and may result in the disqualification of bid. If an error is made, the bidder must draw a line through error and initial each change. All response, typed or written, information must be clear and legible.

If a pricing form in Excel is included and posted on the County website amongst this bid document, the Vendor must download, complete and save the Excel file of the pricing form on a CD or flash drive. The Excel file on the CD or flash drive must be downloadable by the Purchasing Department in order to copy and paste the vendor's pricing to the County's tabulation. The CD or flash drive must be included in the same sealed envelope with the respondent's completed bid document along with a printed copy of the pricing form.

1.5 Bid Returns: Bidders must return all completed bids to the Fort Bend County Purchasing Department at 301 Jackson, Suite 201 Richmond Texas no later than 2:00 P.M. on the date specified. Late bids will not be accepted. Bids must be submitted in a sealed envelope, addressed as follows: Fort Bend County Purchasing Agent, Travis Annex, 301 Jackson, Suite 201 Richmond, Texas 77469.

1.6 Addenda: No interpretation of the meaning of the drawings, specifications or other bid documents will be made to any bidder orally. All requests for such interpretations must be made in writing addressed to Cheryl Krejci, CPPB, Senior Buyer, 301, Jackson, Suite 201, Richmond, Texas, 77469, E-mail: Cheryl.Krejci@fortbendcountytx.gov. Any and all interpretations and any supplemental instructions will be in the form of written addenda to the contract

Initials of Bidder: _____

documents which will be posted on Fort Bend County's website. Addenda will **ONLY** be issued by the Fort Bend County Purchasing Agent. It is the sole responsibility of each bidder to insure receipt of any and all addenda. All addenda issued will become part of the contract documents. Bidders must sign and include it in the returned bid package. Failure to provide acknowledged addenda(s) will result in disqualification of bid response. Deadline for submission of questions and/or clarification is no later than **Monday, June 29, 2020 at 9:00AM (central)** Requests received after the deadline will not be responded to due to the time constraints of this bid process.

1.7 Letters of Reference: All bidders must submit, **WITH BID**, at least three (3) letters of reference from clients for whom a project similar to that specified herein has been successfully accomplished. Letters of reference must include brief description, project measurements, clients' name, contact person and telephone number.

1.8 Bid Bond: All bidders must submit, **WITH BID**, a cashier's check or certified check for at least five percent (5%) of the total bid price, payable to the order of Fort Bend County, or a Bid Bond in the same amount issued by a surety, acceptable to Fort Bend County, authorized to do business in the State of Texas, as a guarantee that the Bidder will do the work described herein at the rates stated herein. Unsuccessful bidder's Cashier's Check or Certified Check will be returned only after a written request to do so have been received in the Office of the Fort Bend County Purchasing Agent.

1.9 Material Safety Data Sheets: Under the "Hazardous Communication Act", commonly known as the "Texas Right to Know Act", a bidder must provide to Fort Bend County and using departments, with each delivery, material safety data sheets, which are, applicable to hazardous substances defined in the Act. Bidders are obligated to maintain a current, updated file in the Fort Bend County Purchasing Department. Failure of the bidder to maintain such a file will be cause to reject any bid applying thereto.

1.10 Pricing: Prices for all goods and/or services shall be firm for the duration of this Contract and shall be stated on the bid sheet. Prices shall be all inclusive. No price changes, additions, or subsequent qualifications will be honored during the course of the Contract. All prices must be written in ink or typewritten. If there are any additional charges of any kind, other than those mentioned above, specified or unspecified, bidder MUST indicate the items required and attendant costs or forfeit the right to payment for such items.

1.11 Term Contracts: If the Contract is intended to cover a specific time period, said time will be given in the specifications under scope.

1.12 Recycled Materials: Fort Bend County encourages the use of products made of recycled materials and shall give preference in purchasing to products made of

Initials of Bidder: JJ

recycled materials if the products meet applicable specifications as to quantity and quality. Fort Bend County will be the sole judge in determining product preference application.

1.13 Evaluation: Evaluation shall be used as a determinant as to which bid items or services are the most efficient and/or most economical for Fort Bend County. It shall be based on all factors which have a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Fort Bend County Purchasing Department and recommendation to Fort Bend County Commissioners Court. Compliance with all bid requirements, delivery and needs of the using department are considerations in evaluating bids. Pricing is NOT the only criteria for making a recommendation. The Fort Bend County Purchasing Department reserves the right to contact any bidder, at any time, to clarify, verify or request information with regard to any bid.

1.14 Disqualification of Bidder: Upon signing this bid document, a bidder offering to sell supplies, materials, services, or equipment to Fort Bend County certifies that the bidder has not violated the antitrust laws of this state codified in section 15.01, et seq., Business & Commerce Code, or the federal antitrust laws, and has not communicated directly or indirectly the bid made to any competitor or any other person engaged in such line of business. Any or all bids may be rejected if Fort Bend County believes that collusion exists among the bidders. Bids in which the prices are obviously unbalanced may be rejected. If multiple bids are submitted by a bidder and after the bids are opened, one of the bids is withdrawn, the result will be that all of the bids submitted by that bidder will be withdrawn; however, nothing herein prohibits a vendor from submitting multiple bids for different products or services.

1.15 Awards: Fort Bend County reserves the right to award this Contract on the basis of lowest and best bid in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one bidder, to reject any or all bids. In the event the lowest dollar bidder meeting specifications is not awarded a contract, the bidder may appear before the Commissioners Court and present evidence concerning its responsibility.

1.16 Contract Obligation: Fort Bend County Commissioners Court must award the Contract and the County Judge or other person authorized by the Fort Bend County Commissioners Court must sign the Contract before it becomes binding on Fort Bend County or the bidders. Department heads are not authorized to sign agreements for Fort Bend County. Binding agreements shall remain in effect until all products and/or services covered by this purchase have been satisfactorily delivered and accepted.

2.0 SCOPE:

It is the intent of Fort Bend County to contract with one (1) or more vendors for all materials, supplies, equipment, tools, services, labor and supervision necessary to provide roof replacement

Initials of Bidder: _____

at various locations within Fort Bend County, hereinafter referred to as the "Project," as specified herein.

3.0 PRE-BID CONFERENCE:

A pre-bid conference will be conducted on **Tuesday, June 23, 2020 at 9:00AM** (central). The pre-bid conference will be held at the Fort Bend County Purchasing Department located in the Travis Annex at 301 Jackson, Suite 201, Richmond, Texas 77469, with a walk-through immediately following, (if needed). All bidders are encouraged to attend as this is the only date and time to view the sites.

4.0 LIQUIDATED DAMAGES:

If the Project is not substantially complete within the contract time as adjusted by extension of time approved by Commissioner Court, Fort Bend County will deduct (from the final payment, as liquidated damages), the sum of two-hundred fifty ($250.00) per calendar day that the Project remains not substantially complete, such sum is agreed upon as a reasonable and proper measure of damages which Fort Bend County will sustain per day by failure of Contractor to substantially complete work within the contract time. It is understood that said sum shall be considered as liquidated damages and shall in no sense be considered as a penalty against the Contractor.

5.0 COMPLETION TIME AND PAYMENT:

5.1 Fort Bend County shall pay the Contractor in current funds for the Contractor's performance of the Contract the contract sum, as stated herein, after receipt of notice to proceed and a purchase order issued by the Fort Bend County Purchasing Agent.

5.2 Based upon Applications for payment submitted to the Facilities Department, Fort Bend County shall make progress payments on account of the contract sum to the Contractor as provided below and elsewhere in the contract documents.

5.2.1 The period covered by each application for payment shall be one calendar month ending on the last day of the month.

5.2.2 Provided an application for payment is received by the Facilities Department not later than the 15th day of a month, Fort Bend County shall make payment to the Contractor not later than the 15th day of the next month. If an application for payment is received by the Facilities Department after the application deadline fixed above, payment shall be made by Fort Bend County not later than 30 days after the Facilities Department receives the application for payment.

5.2.3 Application for payment shall indicate the percentage of completion of each portion of the Project as of the end of the period covered by the application for payment.

Initials of Bidder: _____

5.2.4 Subject to the provisions of the contract documents, the amount of each progress payment shall be computed as follows:

5.2.4.1 Take that portion of the contract sum properly allocable to completed Project less retainage of ten percent (10%).

5.2.4.2 Add that portion of the contract sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved by Fort Bend County, suitably stored off the site at a location agreed upon in writing), less retainage of ten percent (10%).

5.2.4.3 Subtract the aggregate of previous payments made by Fort Bend County.

5.2.4.4 The progress payment amount as determined in above shall be further modified under the following circumstances:

Add, upon substantial completion of the Project, a sum sufficient to increase the total payments to one hundred percent (100%) of the contract sum, less such amounts as Fort Bend County shall determine for incomplete work and unsettled claims.

5.2.4.5 Final payment, constituting the entire unpaid balance of the contract sum, shall be made by Fort Bend County to the Contractor when the Contract has been fully performed by the Contractor.

5.3 Before the first application for payment, the Contractor shall submit to the Facilities Department a schedule of values allocated to various portions of the work, prepared in such form and supported by such data to substantiate its accuracy as the Facilities Department may require. This schedule, unless objected to by the Facilities Department shall be used as a basis for reviewing the Contractor's application for payment.

5.4 Contractor must provide with each application for payment a contractor's affidavit certifying bills against the Contractor for labor, material and expendable equipment employed in the performance of Contractor have been paid in full prior to acceptance of final payment from Fort Bend County.

5.5 The Contractor will permit Fort Bend County, or any duly authorized agent of Fort Bend County, to inspect and examine the books and records of the Contractor for the purpose of verifying the amount of work performed under the Contract. Fort Bend County's right to inspect survives the termination of the Contract for a period of five years.

Initials of Bidder: _____

6.0 LIMIT OF APPROPRIATION:

Prior to the execution of this Contract, Contractor has been advised by County, and Contractor clearly understands and agrees, such understanding and agreement being of the absolute essence to this Contract, that County shall have available only those funds specifically allocated in this Contract to fully discharge any and all liabilities which may be incurred by County in bringing this Project to an absolute conclusion, resulting in a complete, fully furnished, fully equipped and fully usable facility, and that the total of any and all basic construction costs, costs of providing the required services and materials, all fees and compensation of any sort to the Contractor, and any and all costs for any and all things or purposes coming inuring under or out of this Contract, irrespective of the nature thereof, shall not exceed said specifically allocated sum, notwithstanding any word, statement or thing contained in or inferred from the preceding provision of this Contract which might in any light by any person be interpreted to the contrary.

7.0 RIGHT TO ASSURANCE:

Whenever Fort Bend County in good faith has reason to question the Contractor's intent to perform, Fort Bend County may demand that the Contractor give written assurance of its intent to perform. In the event that a demand is made and no assurance is given within five (5) days, Fort Bend County may treat this failure as an anticipatory repudiation of the Contract.

8.0 PERFORMANCE AND PAYMENT BONDS:

Performance and Payment Bonds: In the event the total accepted bid price exceeds $25,000 the Contractor must provide to the Office of the County Purchasing Agent, a performance bond and a payment bond, each in the amount of 100% of the total contract sum within ten (10) calendar days after receipt of notification of bid award. Such bonds shall be executed by a corporate surety duly authorized and admitted to do business in the State of Texas and licensed in the State of Texas to issue surety bonds with a Best Rating of "A" or better. Fort Bend County reserves the right to accept or reject any surety company proposed by the Contractor. In the event Fort Bend County rejects, the proposed surety company, the Contractor will be afforded five (5) additional days to submit the required bonds issued by a surety company acceptable to Fort Bend County.

9.0 POWER OF ATTORNEY:

An attorney-in-fact who signs a bid bond, performance bond or payment bond must file with each bond a certified and effectively dated copy of his or her power of attorney.

10.0 INSURANCE:

10.1 All respondents must submit, with response, a <u>current</u> certificate of insurance indicating coverage in the amounts stated below. In lieu of submitting a certificate of insurance, respondents may submit, with response, a notarized statement from an Insurance company, authorized to conduct business in the State of Texas, and acceptable to Fort Bend County, guaranteeing the issuance of an

Initials of Bidder: _____

insurance policy, with the coverage stated below, to the firm named therein, if successful, upon award of this Contract. Failure to provide current insurance certificate or notarized statement will result in disqualification of submittal.

10.2 At contract execution, contractor shall furnish County with properly executed certificates of insurance which shall evidence all insurance required and provide that such insurance shall not be canceled, except on 30 days prior written notice to County. Contractor shall provide certified copies of insurance endorsements and/or policies if requested by County. Contractor shall maintain such insurance coverage from the time Services commence until Services are completed and provide replacement certificates, policies and/or endorsements for any such insurance expiring prior to completion of Services. Contractor shall obtain such insurance written on an Occurrence form (or a Claims Made form for Professional Liability insurance) from such companies having Best's rating of A/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

10.2.1 Workers' Compensation insurance. Substitutes to genuine Workers' Compensation Insurance will not be allowed.

10.2.2 Employers' Liability insurance with limits of not less than $1,000,000 per injury by accident, $1,000,000 per injury by disease, and $1,000,000 per bodily injury by disease.

10.2.3 Commercial general liability insurance with a limit of not less than $1,000,000 each occurrence and $2,000,000 in the annual aggregate. Policy shall cover liability for bodily injury, personal injury, and property damage and products/completed operations arising out of the business operations of the policyholder.

10.2.4 Business Automobile Liability coverage with a combined Bodily Injury/Property Damage limit of not less than $1,000,000 each accident. The policy shall cover liability arising from the operation of licensed vehicles by policyholder.

10.3 County and the members of Commissioners Court shall be named as additional insured to all required coverage except for Workers' Compensation and Professional Liability (if required). All Liability policies including Workers' Compensation written on behalf of contractor, excluding Professional Liability, shall contain a waiver of subrogation in favor of County and members of Commissioners Court.

10.4 If required coverage is written on a claims-made basis, contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of the contract; and that continuous coverage will be maintained or an

Initials of Bidder: _____

extended discovery period will be exercised for a period of two (2) years beginning from the time that work under the agreement is completed.

10.5 Contractor shall not commence any portion of the work under this Contract until it has obtained the insurance required herein and certificates of such insurance have been filed with and approved by Fort Bend County.

10.6 No cancellation of or changes to the certificates, or the policies, may be made without sixty (60) days prior, written notification to Fort Bend County.

10.7 Approval of the insurance by Fort Bend County shall not relieve or decrease the liability of the Contractor.

11.0 INDEMNIFICATION:

Respondent shall save harmless County from and against all claims, liability, and expenses, including reasonable attorney's fees, arising from activities of respondent, its agents, servants or employees, performed under this agreement that result from the negligent act, error, or omission of respondent or any of respondent's agents, servants or employees.

11.1 Respondent shall timely report all such matters to Fort Bend County and shall, upon the receipt of any such claim, demand, suit, action, proceeding, lien or judgment, not later than the fifteenth day of each month; provide Fort Bend County with a written report on each such matter, setting forth the status of each matter, the schedule or planned proceedings with respect to each matter and the cooperation or assistance, if any, of Fort Bend County required by Respondent in the defense of each matter.

11.2 Respondent's duty to defend, indemnify and hold Fort Bend County harmless shall be absolute. It shall not abate or end by reason of the expiration or termination of any contract unless otherwise agreed by Fort Bend County in writing. The provisions of this section shall survive the termination of the contract and shall remain in full force and effect with respect to all such matters no matter when they arise.

11.3 In the event of any dispute between the parties as to whether a claim, demand, suit, action, proceeding, lien or judgment appears to have been caused by or appears to have arisen out of or in connection with acts or omissions of Respondent, Respondent shall never-the-less fully defend such claim, demand, suit, action, proceeding, lien or judgment until and unless there is a determination by a court of competent jurisdiction that the acts and omissions of Respondent are not at issue in the matter.

11.4 Respondent's indemnification shall cover, and Respondent agrees to indemnify Fort Bend County, in the event Fort Bend County is found to have been negligent for having selected Respondent to perform the work described in this request.

Initials of Bidder: _____

11.5 The provision by Respondent of insurance shall not limit the liability of Respondent under an agreement.

11.6 Respondent shall cause all trade contractors and any other contractor who may have a contract to perform construction or installation work in the area where work will be performed under this request, to agree to indemnify Fort Bend County and to hold it harmless from all claims for bodily injury and property damage that may arise from said Respondent's operations. Such provisions shall be in form satisfactory to Fort Bend County.

11.7 Loss Deduction Clause - Fort Bend County shall be exempt from, and in no way liable for, any sums of money which may represent a deductible in any insurance policy. The payment of deductibles shall be the sole responsibility of Respondent and/or trade contractor providing such insurance.

12.0 PREVAILING WAGES:

This project is subject to the prevailing wage rate requirements of Chapter 2258 of the Government Code. The Contractor shall pay Fort Bend County sixty dollars ($60.00) for each worker employed by the Contractor for the provision of services described herein for each calendar day or part of the day that the worker is paid less than the below stated rates. Contractors may also visit https://beta.sam.gov .

General Decision Number: TX20200247 01/03/2020
Superseded General Decision Number: TX20190247

State: Texas
Construction Type: Building
County: Fort Bend County in Texas.
BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a
classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply
to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR

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5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020

ASBE0022-009 06/01/2019

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)	$ 24.28	14.16
BOIL0074-003 01/01/2017		
BOILERMAKER	$ 28.00	22.35
CARP0551-008 04/01/2016		
CARPENTER (Excludes Acoustical Ceiling Installation, Drywall Hanging, Form Work and Metal Stud Installation)	$ 23.05	8.78
* ELEC0716-005 08/28/2019		
ELECTRICIAN (Excludes Low Voltage Wiring and Installation of Alarms)	$ 32.25	9.24
ELEV0031-003 01/01/2019		
ELEVATOR MECHANIC	$ 42.60	33.705

FOOTNOTES:

A. 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.

B. Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christmas Day; and Veterans Day.

ENGI0450-002 04/01/2014

POWER EQUIPMENT OPERATOR Cranes	$ 34.85	9.85
IRON0084-002 06/01/2019		
IRONWORKER (ORNAMENTAL AND STRUCTURAL)	$ 24.42	7.12

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PLAS0079-004 01/01/2015		
PLASTERER	$ 19.92	1.00
* PLUM0068-002 10/01/2019		
PLUMBER	$ 36.15	11.04
PLUM0211-010 10/01/2018		
PIPEFITTER (Including HVAC Pipe Installation)	$ 33.30	12.26
SHEE0054-003 07/01/2017		
SHEET METAL WORKER (Excludes HVAC Duct and Unit Installation)	$ 27.72	13.70
SUTX2014-023 07/21/2014		
ACOUSTICAL CEILING MECHANIC	$ 16.41	3.98
BRICKLAYER	$ 19.86	0.00
CAULKER	$ 15.36	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.82	0.00
DRYWALL FINISHER/TAPER	$ 16.30	3.71
DRYWALL HANGER AND METAL STUD INSTALLER	$ 17.45	3.96
ELECTRICIAN (Alarm Installation Only)	$ 17.97	3.37
ELECTRICIAN (Low Voltage Wiring Only)	$ 18.00	1.68
FLOOR LAYER: Carpet	$ 20.00	0.00
FORM WORKER	$ 11.87	0.00
GLAZIER	$ 19.12	4.41
INSULATOR – BATT	$ 14.87	0.73
IRONWORKER, REINFORCING	$ 12.10	0.00
LABORER: Common or General	$ 10.79	0.00

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LABORER: Mason Tender – Brick	$ 13.37	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.50	0.00
LABORER: Pipelayer	$ 12.94	0.00
LABORER: Roof Tearoff.	$ 11.28	0.00
LABORER: Landscape and Irrigation	$ 9.49	0.00
LATHER	$ 19.73	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.10	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 20.77	0.00
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 15.64	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00
OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 16.00	0.00
PAINTER (Brush, Roller and Spray), Excludes Drywall Finishing/Taping	$ 16.77	4.51
ROOFER	$ 15.40	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 17.81	2.64
SHEET METAL WORKER (HVAC Unit Installation Only)	$ 16.00	1.61
SPRINKLER FITTER (Fire Sprinklers)	$ 22.17	9.70
TILE FINISHER	$ 12.00	0.00

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TILE SETTER	$ 16.17	0.00
TRUCK DRIVER: 1/Single Axle Truck	$ 14.95	5.23
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11
WATERPROOFER	$ 14.39	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular
rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which

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in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average
calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because

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those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

13.0 PERMITS:

It shall be the sole responsibility of the successful bidder to obtain all required permits in the name of Fort Bend County.

14.0 CONTRACTOR'S RESPONSIBILITY FOR WORK:

14.1 Preconstruction Work. Contractor shall do (or cause to be done) the following as preconstruction work:

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14.1.1 On an as needed basis as determined by Fort Bend County, cause the Contractor's personnel to meet with Fort Bend County and the Engineer to discuss the status of the Project.

14.1.2 Review drawings and specifications with the Engineer to permit the Contractor and the Engineer to determine the compliance of the proposed facility with applicable building codes.

14.2 Construction Work. Contractor shall do (or cause to be done) the following as construction work:

14.2.1 Perform (or cause to be performed) all preparatory work at the construction site required herein, including (without limitation) soil and concrete testing and demolition of improvements existing at the construction site and all actions necessary for compliance with all laws and regulations as to actions to be taken by owners or contractors before construction begins, including without limitation those in regard to archaeological and environmental requirements.

14.2.2 Construct and install (or cause to be constructed and installed) the Project on the construction site in accordance with this Contract and the drawings and specifications approved by Fort Bend County.

14.2.3 Furnish (or cause to be furnished) all materials, supplies, equipment, tools, labor, supervision, utilities, transportation, and other materials and services necessary to complete the Project described herein.

14.2.4 Materials testing necessary for the Project and required by laws and regulations, construction industry standards as approved by Fort Bend County and this Contract; the frequency of testing shall be approved by Fort Bend County. **It is the contractor's responsibility to engage a material testing laboratory to perform testing on the structural concrete to be used for foundation work in this project. The cost of testing shall be incidental to bid item for drill shaft foundation. Testing of concrete shall comply with current TXDOT criteria. Contractor has to submit the name of the testing laboratory, intended to be used by the contractor for this project, for County's approval.**

14.3 Standards for Review and Approval. Fort Bend County acknowledges that in order to meet the deadlines for the completion of the Project, and in order to accomplish the efficient completion of the Project, the Contractor may submit matters to Fort Bend County in stages for approval or consent. Upon receipt of any matter submitted by the Contractor for review and approval, Fort Bend County shall review the same and shall diligently and promptly (but in any event within 14 calendar days for any such matter, other than a proposed change order, and within 28 calendar days for a proposed change order) give the Contractor notice of Fort Bend County's approval or disapproval, setting forth in detail all

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reasons for any disapproval. Fort Bend County's right to disapprove any such matter submitted (other than a proposed change order) shall be limited to the elements thereof (a) which do not conform substantially to matters previously approved, (b) which are new elements not previously presented and approved and the Contractor is unable to demonstrate that such new element is reasonably necessary for completion of the Project, or (c) which depict matters that are violations of this Contract or applicable laws and regulations.

14.3.1 If Fort Bend County disapproves of a particular matter or Proposed Change Order, the Contractor shall have the right to resubmit such matter or Proposed Change Order to Fort Bend County, altered to satisfy Fort Bend County's basis for disapproval. Any resubmission shall be subject to review and approval by Fort Bend County.

14.3.2 Fort Bend County and the Contractor shall attempt in good faith to resolve any disputes concerning the approval of any aspect of the Project expeditiously, so as not to delay the completion of the Project in accordance with this Contract.

14.3.3 Expedited Approvals. Fort Bend County recognizes the importance of expeditious action upon all matters submitted to Fort Bend County for review and approval and of expeditious response to those aspects of the Project requiring approval by governmental authorities having jurisdiction there over. Fort Bend County agrees to exercise its rights of review and approval hereunder with due diligence, reasonableness, and good faith. Fort Bend County shall use its reasonable efforts to expedite any required review of the Project or other matters by any governmental authority.

14.4 Changes.

14.4.1 General. Fort Bend County may make changes to the Project by altering, adding to, or deducting from the Project. All changes in the Project which (a) require an adjustment in the contract sum or an adjustment in the final completion date or (b) involve a material change in the overall scope or function of the Project shall be requested and authorized before commencing such changes by use of written change order notices, Proposed Change Orders and Change Orders, which change order procedure shall be the exclusive means to effect such changes in the Project.

14.4.2 Change Order Procedure. If at any time Fort Bend County desires to make any change in the Project requiring the issuance of a Change Order, Fort Bend County shall so advise the Contractor in writing by delivery to the Contractor of a written notice describing the change. Upon receipt of such notice initiated by Fort Bend County, the Contractor shall within a reasonable period of time advise Fort Bend County of the Contractor's

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proposal for the adjustments, if any, in the contract sum, the schedule of values, and the final completion date attributable to such change by delivering a written notice thereof (the "Proposed Change Order") to Fort Bend County. Such Proposed Change Order shall contain a description of the proposed change and shall set forth the Contractor's estimate of the increase or decrease, if any, in the contract sum and the change, if any, in the schedule of values and the final completion date attributable to such change. If the Contractor desires to make a change in the Project requiring the issuance of a change order, the Contractor shall deliver to Fort Bend County a Proposed Change Order. Upon execution by Fort Bend County, a Proposed Change Order shall constitute (and be defined herein as) a "Change Order" for purposes of this Contract. The Contractor shall forthwith perform the work as changed in accordance with such Change Order. All work performed pursuant to a Change Order shall be performed in accordance with the terms of this Contract. All Proposed Change Orders shall be submitted for approval by Fort Bend County. No action, acquiescence or inaction by Fort Bend County or any representative of Fort Bend County shall be construed to be a waiver of requirements set forth in this Contract in regard to Change Orders or ratification of a violation of such requirements, and all acts in violation of this provision shall be considered void.

14.4.3 Change Order Authorization. Each Change Order shall be signed by Fort Bend County and an authorized representative of the Contractor.

14.4.4 Contract Sum Adjustments. The contract sum and the schedule of values shall be adjusted only as a result of a Change Order requiring such adjustment. Any extra work performed without a proper Change Order shall be considered voluntary and not subject to additional compensation. The Contractor shall not be entitled to an adjustment in the contract sum (or a Change Order permitting such adjustment) or to damages as a result of any delays in the Project caused by the acts or omissions of Fort Bend County, provided that this sentence is not applicable to delays that constitute more than 90 days in any 365-day period or cause the Project to be interrupted for a continuous period of 45 days through no fault of the Contractor.

14.4.5 When Fort Bend County and the Contractor agree upon the adjustments in the contract sum, the schedule of values, and the final completion date attributable to such adjustment, such agreement will be documented by preparation and if approved by the Fort Bend County Commissioners Court, execution of an appropriate Change Order.

14.5 Site Access. Prior to the transfer date, Fort Bend County and the Contractor shall have uninterrupted access to the construction site. Subsequent to the transfer date, Fort Bend County will permit the Contractor, the Engineer, and their representatives and subcontractors to enter upon the Project at times reasonably

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necessary to complete the punch list items.

14.6 Applicable Laws and Regulations. Contractor shall in its performance of the Project comply with all applicable laws and regulations. Any delays in the prosecution of the Project caused by any changes in the laws and regulations or the application or enforcement of the laws and regulations may entitle the Contractor to an extension of time.

14.7 Familiarity with Project. The Contractor represents and accepts that it has: (a) visited the property(ies), (b) taken such other steps as may be necessary to ascertain the nature and location of the Project and the general and local conditions which affect the Project or the cost thereof, (c) investigated the labor situation as regards to the Project, (d) examined the property(ies), the obstacles which may be encountered and all other observable conditions having a bearing upon the performance of the Project, the superintendence of the Project, the time of completion and all other relevant matters, and (e) reported to Fort Bend County the results of all of the foregoing. The Contractor represents that it is familiar with all phases of the Project and the matters that may affect the Project or its prosecution under this Contract.

14.8 Standard of Performance. The Contractor shall prosecute (or cause to be prosecuted) the Project in accordance with the best efforts for the construction and development of projects similar to the Project in the State of Texas, using qualified, careful, and efficient contractors and workers and in conformity with the provisions of this Contract. The Contractor shall perform the work in a good and workmanlike manner.

14.9 Warranty of Contractor. The Contractor warrants to Fort Bend County that: (i) the Contractor possesses the skill and knowledge ordinarily possessed by well-informed members of its trade or profession and the Contractor will use its best efforts to ensure that the services provided under this Contract will be performed, delivered, and conducted in accordance with the best professional standards and in accordance with industry standards, and (ii) the Contractor is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly equipped, organized and financed to perform such work, and (iii) following the date of acceptance of this Contract, the services provided by the Contractor to Fort Bend County will conform to the representations contained in this Contract, including all attachments, schedules and exhibits. All warranties provided by the Contractor in this Contract shall be cumulative, shall be deemed consistent and not in conflict, are intended to be given full force and effect and to be interpreted expansively to give the broadest warranty protection to Fort Bend County.

14.10 Contractor's Personnel. Contractor shall employ only competent, skilled personnel for the Project. Prior to the final completion date, the Contractor shall maintain a superintendent who shall be authorized to act on behalf of the Contractor and with

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whom Fort Bend County may consult at all reasonable times. The superintendent shall not be transferred from the Project without Fort Bend County's consent (which shall not be unreasonably withheld or delayed); provided, however, the superintendent shall not be assigned solely to the Project and shall be entitled to spend reasonable time working on matters unrelated to the Project so long as such work on other matters does not render the superintendent unavailable to the Project or unavailable to Fort Bend County. However, such obligation to furnish the superintendent and such staff personnel shall not be construed (a) to preclude the promotion within the Contractor's organization of any person assigned to the Project or (b) to give rise to any liability of the Contractor if any person assigned to the Project (including, without limitation, the superintendent) leaves the Contractor's employment. If the superintendent is transferred from the Project, Fort Bend County shall have the right to approve the replacement superintendent (which approval will not be unreasonably withheld or delayed). The Contractor, the Architect, and the other subcontractors shall comply with all applicable health, safety, and loss prevention rules of applicable governmental authorities. The Contractor shall, at its own expense, remove from the Project any person who fails to comply with such rules and instructions. The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ on the Project any unfit person or anyone not skilled in the work assigned to him. Fort Bend County may, upon written notice to the Contractor, require the Contractor to remove an individual immediately from providing services for the following reasons: violation of the terms and conditions of this Contract; violation of Fort Bend County's or the Contractor's work rules and regulations; criminal activity; or violation of state, federal, or municipal statutes. Fort Bend County may, upon thirty (30) days written notice to the Contractor, require the removal of any individual from providing services without cause.

14.11 Inspection. The Project and all parts thereof shall be subject to inspection from time to time by inspectors designated by Fort Bend County. No such inspections shall relieve The Contractor of any of its obligations hereunder. Neither failure to inspect nor failure to discover or reject any of the work as not in accordance with the drawings and specifications or any provision of this Contract shall be construed to imply an acceptance of such work or to relieve the Contractor of any of its obligations hereunder. Fort Bend County agrees that its right of inspection shall be used reasonably and in a timely manner so as not to delay orderly completion of the Project.

14.12 Protection Against Risks. The Contractor shall take all precautions which are necessary and adequate, against conditions created during the progress of the Project which involve a risk of bodily harm to persons or a risk of damage or loss to any property. The Contractor shall regularly inspect all work, materials and equipment to discover and determine any such conditions and shall be responsible for discovery, determination, and correction of any such conditions. The Contractor shall comply with all federal, state, and local occupational hazard and safety standards, codes and regulations applicable in the jurisdiction where the

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Project is being performed. The Contractor shall include the substance of this clause in its entirety in all subcontracts for any work to be performed at the construction site.

14.13 Equipment. Except as expressly provided herein to the contrary, the Contractor shall furnish (or cause to be furnished) all construction, transportation, installation, tools, and other equipment and facilities required for the performance of the Project within the times specified herein. Such equipment and facilities shall be serviceable and kept fit for the uses intended. Defective items shall be removed from the construction site promptly and at the Contractor's cost. The Contractor shall schedule (or cause to be scheduled) its other operations so as to not interfere with its duty to timely furnish the necessary equipment and facilities and personnel to operate the same at the times necessary for the orderly completion of the Project.

14.14 Materials. Except as may be specifically provided otherwise in the Contract or approved in advance by Fort Bend County, the Contractor shall provide Fort Bend County with copies of material testing reports and to cause all materials, equipment, and fabricated items incorporated in the Project to be new and of a suitable grade of their respective kinds for their intended use.

15.0 TERMINATION:

15.1 Fort Bend County may terminate the Contract if the Contractor:

15.1.1 Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials.

15.1.2 Fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractor.

15.1.3 Persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction.

15.1.4 Otherwise is guilty of substantial breach of a provision of the Contract Documents.

15.2 When any of the above reasons exists, Fort Bend County may, without prejudice to any other rights or remedies of Fort Bend County and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

15.2.1 Take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor.

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15.2.2 Finish the Project by whatever reasonable method Fort Bend County may deem expedient.

15.3 Either party may terminate this Contract at any time by providing thirty (30) days written notice.

15.4 When Fort Bend County terminates the Contract for one of the reasons stated in this section, the Contractor shall not be entitled to receive further payment until the Project is finished. Therefore, the Contractor shall be promptly paid for all work actually and satisfactorily completed.

16.0 COMPLETION, TRANSFER, AND ACCEPTANCE:

16.1 Final Completion. Upon the occurrence of the final completion date, the punch list items shall be promptly commenced and thereafter completed within thirty (30) days after final completion.

16.2 Transfer and Acceptance. Upon the occurrence of final completion, care, custody and control of the Project shall pass to Fort Bend County. As referenced herein, the "Transfer Date" shall mean the date on which the care, custody and control of the Project passes to Fort Bend County. Subsequent to the Transfer Date all risk of loss with respect to the Project shall be by Fort Bend County and the Contractor shall be thereafter obligated to cover the Project with their Insurance.

17.0 SUSPENSION BY FORT BEND COUNTY FOR CONVENIENCE:

17.1 Fort Bend County may, without cause, order the Contractor in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as Fort Bend County may determine.

17.2 An adjustment shall be made for increase in the cost of performance, caused by suspension, delay or interruption. No adjustment shall be made to the extent:

17.2.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible.

17.2.2 That an equitable adjustment is made or denied under another provision of this Contract.

17.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

18.0 INDEPENDENT CONTRACTOR:

The Contractor shall be an independent contractor and any provisions of this Contract that may appear to give Fort Bend County the right to direct the Contractor as to the details of the manner

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of doing the Project shall be deemed to mean that the Contractor shall follow the desires of Fort Bend County in the results of the Project only and not in the means whereby the Project is to be accomplished. The Contractor shall be responsible as to the details of completing the Project. Neither the agents, representatives, nor employees of the Contractor, shall be deemed to be the agents, representatives, or employees of Fort Bend County. The Contractor further represents that it accepts a fiduciary role and responsibility with respect to Fort Bend County and will, to its best abilities, act in the best interests of Fort Bend County and the timely completion of the Project. The Contractor agrees and understands that neither it nor any of its agents or employees may act in the name of Fort Bend County except and unless specifically authorized in writing by Fort Bend County to do so. The Contractor shall furnish construction administration and management services and use the Contractor's best efforts to complete the Project in an expeditious and economical manner consistent with the interests of Fort Bend County.

19.0 NOTICE

19.1 All written notices, demands, and other papers or documents to be delivered to Fort Bend County under this Contract shall be delivered to the Sheriff's Office, 301 Jackson, Richmond, Texas 77469, or at such other place or places as Fort Bend County may from time to time designate by written notice delivered to the Contractor. For purposes of notice under this Contract, a copy of any notice or communication hereunder shall also be forwarded to the following address: Fort Bend County, 301 Jackson Street, Suite 719, Richmond, Texas 77469, Attention: County Judge.

19.2 All written notices, demands, and other papers or documents to be delivered to the Contractor under this Contract shall be delivered to the Authorized Representative identified in the Contract documents or such other place or places as the Contractor may designate by written notice delivered to Fort Bend County.

20.0 RECORDS:

20.1 Fort Bend County shall be the absolute and unqualified owner of all drawings, preliminary layouts, record drawings, sketches and other documents prepared pursuant to the Contract by Contractor.

20.2 The Contractor agrees to maintain and preserve for a period of at least five years after the earlier of the expiration of the defects period or termination of this Contract, accurate and complete records relating to the performance of the Project. The Contractor agrees to, upon request, provide Fort Bend County with such records.

21.0 SUCCESSORS AND ASSIGNS:

21.1 Fort Bend County and the Contractor bind themselves and their successors, executors, administrators and assigns to the other party of this Contract and to the successors, executors, administrators and assigns of such other party, in respect to

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all covenants of this Contract.

21.2 Neither Fort Bend County nor the Contractor shall assign, sublet or transfer its interest in this Contract without the prior written consent of the other.

21.3 Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public and/or governmental body that may be a party hereto.

22.0 PUBLIC CONTACT:

Contact with the news media, citizens of Fort Bend County or governmental agencies shall be the sole responsibility of Fort Bend County. Under no circumstances, whatsoever, shall Contractor release any material or information developed in the performance of its services hereunder without the express written permission of Fort Bend County, except where required to do so by law.

23.0 MODIFICATIONS:

This instrument contains the entire Contract between the parties relating to the rights herein granted and obligations herein assumed. Any oral or written representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent written modification signed by both parties hereto.

24.0 SILENCE OF SPECIFICATIONS:

The apparent silence of specifications as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of specifications shall be made on the basis of this statement. The items furnished under this contract shall be new, unused of the latest product in production to commercial trade and shall be of the highest quality as to materials used and workmanship. Manufacturer furnishing these items shall be experienced in design and construction of such items and shall be an established supplier of the item bid.

25.0 SEVERABILITY:

In the event one or more of the provisions contained in these requirements or the specifications shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision hereof and these requirements or the specifications shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

26.0 GOVERNING FORMS:

In the event of any conflict between the terms and provisions of these requirements and the specifications, the specifications shall govern. In the event of any conflict of interpretation of

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any part of this overall document, Fort Bend County's interpretation shall govern.

27.0 TAX EXEMPT:

Fort Bend County is exempt from state and local sales and use taxes under Section 151.309 of the Texas Tax Code. This Contract is deemed to be a separate contract for Texas tax purposes, and as such, Fort Bend County hereby issues its Texas Exemption for the purchase of any items qualifying for exemption under this Contract. Contractor is to issue its Texas Resale Certificate to vendors and subcontractors for such items qualifying for this exemption, and further, contractor should state these items at cost.

28.0 ENTIRE AGREEMENT:

The Parties agree that this Contract contains all of the terms and conditions of the understanding of the parties relating to the subject matter hereof. All prior negotiations, discussions, correspondence and preliminary understandings between the parties and others relating hereto are superseded by this Contract. By entering into this Contract, the parties do not intend to create any obligations, express or implied, other than those specifically set out in this Contract.

29.0 APPLICABLE LAW AND VENUE

This Contract shall be construed under and in accord with the laws of the State of Texas, and all obligations of the parties created hereunder are performable in Fort Bend County, Texas, and that venue for any litigation arising out of or related to this Contract shall lie solely in the court of appropriate jurisdiction located in Fort Bend County, Texas.

30.0 ENCLOSURE:

The following being incorporated herein by reference for all purposes as though fully set forth herein word for word.

Enclosure #1 – Project Manual

31.0 SPECIFICATIONS AND BID PRICING FOR CINCO RANCH BRANCH LIBRARY (*Option 1*):

31.1 Work shall include all labor and materials to provide a recover. The entire roofing system is to be power broomed and cleaned to accept a new mechanically fastened gypsum cover-board.

31.2 Provide and install 1-layer of half-inch (1/2") gypsum cover-board mechanically fastened to existing metal deck.

31.3 Provide and install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt.

Initials of Bidder: _____

31.4 Provide and install 1-layer of 67-mil nominal fleece back PVC membrane containing Elvaloy set in hot asphalt.

31.5 Provide and install new overflow scuppers adjacent to existing roof drains as shown on detail drawings.

31.6 Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.

31.7 On Roof Area B, infill existing rear of gables with wood blocking, Cold form framing, insulation, waterproofing, hat channels and flush metal wall panels to eliminate the base flashing condition at the steel angle.

31.8 Remove and replace all counter-flashings and replace with new stainless-steel metal.

31.9 Extend existing soil pipes to a height of eight inches (8") above finished roof surface.

31.10 Provide and install crickets at the high side of each unit larger than twenty-four inches (24").

31.11 Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.

31.12 Clean, wirebrush, treat rust, and paint existing roof hatches with aluminized paint.

31.13 Replace all existing clamping ring bolts with stainless-steel bolts with washers.

31.14 All small piping is required to be supported by small pipe supports with rollers.

31.15 All measurements are the responsibility of the Contractor.

31.16 Contractor to recertify and reattach existing lightning protection.

31.17 Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.

31.18 Provide a two (2) year Contractors warranty.

31.19 All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

Initials of Bidder: _____

31.20 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Cinco Ranch Branch Library: $_____
For *Option 1*. (Pricing to include complete construction of the roof repairs of Cinco Ranch Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

32.0 SPECIFICATION AND BID PRICING FOR CINCO RANCH BRANCH LIBRARY (*Option 2*):

32.1 Work shall include all labor and materials to provide a full reroof. The entire roofing system is to be removed down to the existing metal roof deck.

32.2 Provide and install one layer of mechanically attached polyisocyanurate insulation.

32.3 Provide and install one (1) layer of polyisocyanurate insulation, set in hot asphalt. Contractor to verify insulation thickness meets R-25 for energy code.

32.4 Provide and install 1-layer of half-inch (1/2") gypsum cover-board mechanically fastened to existing metal deck.

32.5 Provide and install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt.

32.6 Provide and install 1-layer of 67-mil nominal fleece back PVC membrane containing Elvaloy set in hot asphalt.

32.7 Provide and install new overflow scuppers adjacent to existing roof drains as shown on detail drawings.

32.8 Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.

32.9 On Roof Area B, infill existing rear of gables with wood blocking, Cold form framing, insulation, waterproofing, hat channels and flush metal wall panels to eliminate the base flashing condition at the steel angle.

32.10 Remove and replace all counter flashings and replace with new stainless-steel metal.

32.11 Extend existing soil pipes to a height of eight inches (8") above finished roof

Initials of Bidder: _____

surface.

32.12 Provide and install crickets at the high side of each unit larger than twenty-four inches (24").

32.13 Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.

32.14 Replace all existing clamping ring bolts with stainless-steel bolts with washers.

32.15 All small piping is required to be supported by small pipe supports with rollers.

32.16 All measurements are the responsibility of the Contractor.

32.17 Contractor to recertify and reattach existing lightning protection.

32.18 Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.

32.19 Provide a two (2) year Contractors warranty.

32.20 All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

32.21 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Cinco Ranch Branch Library: $_____
For *Option 2*. (Pricing to include complete construction of the roof repairs of Cinco Ranch Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

Initials of Bidder: _____

33.0 SPECIFICATION AND BID PRICING FOR BOB LUTTS FULSHEAR BRANCH LIBRARY (*Option 1*):

33.1 Work shall include all labor and materials to provide maintenance repairs.

33.2 Re-crimp all standing seam metal caps, replace any that are missing or damaged.

33.3 Rework two (2) existing metal valleys on both the front and rear of the building to maintain a waterproof condition.

33.4 Cut-off and remove existing gutters. Install new gutters and downspout inlets into existing leader lines.

33.5 Remove and replace through-wall flashing at all metal to stucco conditions. Install new stainless-steel through-wall metal and new coated metal counter-flashing. Repair EIFS above through-wall flashing.

33.6 Apply elastomeric paint to all EIFS wall condition to match existing building color.

33.7 Provide a two (2) year Contractors warranty.

33.8 This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

33.9 All installation shall be per NRCA, SPRI, ES-1, ASCE 7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Bob Lutts Fulshear Branch Library: $_____
For *Option 1*. (Pricing to include complete construction of the roof repairs of Bob Lutts Fulshear Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

34.0 SPECIFICATION AND BID PRICING FOR BOB LUTTS FULSHEAR BRANCH LIBRARY (*Option 2*):

34.1 Work shall include all labor and materials to provide a full reroof.

34.2 Provide and install roof purlin type system with EPS insulation installed between the flutes of existing standing seam roof panels to the height of the rib.

34.3 Provide and install new standing seam roofing panel system with a single lock standing seam panel, McElroy by design.

Initials of Bidder: _____

34.4 Raise and reinstall new stainless-steel through-wall flashing and repair EIFS as required to complete repair.

34.5 Paint existing and new EIFS wall system with new elastomeric paint, contractor to match existing color with owner approval.

34.6 Provide and install new gutters and downspouts to include downspout inlets into existing leader lines.

34.7 Raise existing vent pipe flashings to provide eight inches (8") flashing height.

34.8 Provide manufacturer's 20 year, full system, non-prorated, no dollar limit weather-tight warranty to be jointly signed by the manufacturer and the Panel Applicator

34.9 Provide a two (2) year Contractors warranty.

34.10 This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

34.11 All installation shall be per NRCA, SPRI, ES-1, ASCE 7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Bob Lutts Fulshear Branch Library: $_____
For *Option 2*. (Pricing to include complete construction of the roof repairs of Bob Lutts Fulshear Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

Initials of Bidder: _____

35.0 SPECIFICATION AND BID PRICING FOR SUGAR LAND BRANCH LIBRARY (*Option 1*):

35.1 Work shall include all labor and materials to provide maintenance repairs associated with a PVC roof system to include installation of new sheet metal coping and continuous metal cleat.

35.2 Repairs to include 100 linear feet of strip-in membrane in various locations.

35.3 Removal and installation of sealant at all conditions associated with membrane termination.

35.4 Paint existing roof hatch with aluminizing paint.

35.5 Provide a one (1) year Contractors warranty pertaining to the repairs made at the time of maintenance repairs.

35.6 This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

35.7 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Sugar Land Branch Library: $_____
For *Option 1*. (Pricing to include complete construction of the roof repairs of Sugar Land Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

36.0 SPECIFICATION AND BID PRICING FOR SUGAR LAND BRANCH LIBRARY (*Option 2*):

36.1 Work shall include all labor and materials to provide maintenance repairs associated with a PVC roof system to include installation of new sheet metal coping and continuous metal cleat.

36.2 Repairs to include 100 linear feet of strip-in membrane in various locations.

36.3 Removal and installation of sealant at all conditions associated with membrane termination.

36.4 Paint existing roof hatch with aluminizing paint.

36.5 Installation of a high quality, polyurethane liquid applied roof system to extend

Initials of Bidder: _____

the life of the roofing system.

36.6 Provide a manufacturer's ten (10) year waterproofing warranty.

36.7 Provide a two (2) year Contractors warranty.

36.8 This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

36.9 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Sugar Land Branch Library: $_____
For *Option 2*. (Pricing to include complete construction of the roof repairs of Sugar Land Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

Initials of Bidder: _____

37.0 SPECIFICATION AND BID PRICING FOR 5TH STREET COMMUNITY CENTER (*Option 1*):

37.1 Work shall include all labor and materials to provide a full reroof over the gym shown as A. The entire roofing system is to be removed to existing open purlins.

37.2 Provide and install new R-25 vinyl-back insulation over open purlins.

37.3 Provide and install a minimum of a 22-gauge White standing seam R-panel roof system to include all accessories to maintain a watertight building.

37.4 Provide and install new gutter and downspout system to match existing size and downspout locations connecting to storm sewer or concrete splash block as required.

37.5 Provide and install transition flashing between Areas A and B extending flashing a minimum of twenty-four inches (24") up slope to prevent water migration. Include sealant tape, sealant and closure strips as required.

37.6 Treat existing fasteners and fasteners locations with rust inhibitor and replace any deteriorated or missing fastener with one-size larger fasteners on Areas B thru G.

37.7 Coat existing R-panel roof system on Area B with a high quality, polyurethane liquid applied roof system, treating any existing hole from previous fasteners with approved manufacturer sealant prior to roofing system application.

37.8 Provide and install all new sheet metal closures at all rake, ridge cap and eave as required to meet manufacturer requirements.

37.9 Remove and replace all sealants present at all conditions across the remaining building standing seam roof system.

37.10 Provide and install new vent pipe neoprene bellows with one size larger, where applicable, apply new sealants and stainless-steel fasteners.

37.11 This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

37.12 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for 5TH Street Community Center: $_____
For *Option 1*. (Pricing to include complete construction of the roof repairs of 5TH Street Community Center, including all general, plumbing, mechanical, and

Initials of Bidder: _____

electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

38.0 SPECIFICATION AND BID PRICING FOR 5TH STREET COMMUNITY CENTER (*Option 2*):

38.1 Work shall include all labor and materials to provide a full reroof over the gym shown as A. The entire roofing system is to be removed to existing open purlins.

38.2 Provide and install new R-25 vinyl-back insulation over open purlins.

38.3 Provide and install a minimum of a 22-gauge White standing seam R-panel roof system to include all accessories to maintain a watertight building.

38.4 Provide and install new gutter and downspout system to match existing size and downspout locations connecting to storm sewer or concrete splash block as required.

38.5 Provide and install transition flashing between Areas A and B extending flashing a minimum of twenty-four inches (24") up slope to prevent water migration.

38.6 Include sealant tape, sealant and closure strips as required.

38.7 Treat existing fasteners and fasteners locations with rust inhibitor and replace any deteriorated or missing fastener with one-size large fasteners on Areas B thru G.

38.8 Coat existing R-panel roof system on Area B with a high quality, polyurethane liquid applied roof system, treating any existing hole from previous fasteners with approved manufacturer sealant prior to roofing system application.

38.9 Provide and install all new sheet metal closures at all rake, ridge cap and eave as required to meet manufacturer requirements.

38.10 Remove and replace all sealants present at all conditions across the remaining building standing seam roof system.

38.11 Provide and install new vent pipe neoprene bellows with one size larger, where applicable, apply new sealants and stainless-steel fasteners.

38.12 Installation of a high quality, polyurethane liquid applied roof system to the remaining roof areas. Install a base coat to mask the present color and install a white, energy efficient membrane.

38.13 Provide a manufacturer's ten (10) year waterproofing warranty.

38.14 Provide a two (2) year Contractors warranty.

Initials of Bidder: _____

38.15 This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

38.16 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for 5TH Street Community Center: $_____
For *Option 2.* (Pricing to include complete construction of the roof repairs of 5TH Street Community Center, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

Initials of Bidder: _____

39.0 SPECIFICATION AND BID PRICING FOR MISSOURI CITY BRANCH LIBRARY (*Option 1*):

39.1 Work shall include all labor and materials to provide a recover. The entire roofing system is to be power broomed and cleaned to accept a new mechanically fastened gypsum cover-board.

39.2 Provide and install 1-layer of half-inch (1/2") cover-board mechanically fastened to existing metal deck.

39.3 Provide and install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt.

39.4 Provide and install 1-layer of 67-mil nominal fleece back PVC membrane containing Elvaloy set in hot asphalt.

39.5 Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.

39.6 Remove and replace all counter-flashings and replace with new stainless-steel metal.

39.7 Extend existing soil pipes to a height of eight inches (8") above finished roof surface.

39.8 Raise existing J-trim at Metal panel barrel roof to allow ten inches (10") flashing height.

39.9 Clean, wirebrush, treat rust, and paint existing roof hatches with aluminized paint.

39.10 Provide and install crickets at the high side of each unit larger then twenty-four inches (24").

39.11 Provide and install crickets at parapet between scupper openings to direct drainage to scuppers.

39.12 All small piping is required to be supported by small pipe supports with rollers.

39.13 All measurements are the responsibility of the Contractor.

39.14 Contractor to recertify and reattach existing lightning protection.

39.15 Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.

39.16 Provide a two (2) year Contractors warranty.

Initials of Bidder: _____

39.17 All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

39.18 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for Missouri City Branch Library: $_____
For *Option 1*. (Pricing to include complete construction of the roof repairs of Missouri City Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

40.0 SPECIFICATION AND PRICING FOR MISSOURI CITY BRANCH LIBRARY (*Option 2)*:

40.1 Work shall include all labor and materials to provide a full reroof. The entire roofing system is to be removed down to the existing metal roof deck.

40.2 Provide and install one layer of mechanically attached polyisocyanurate insulation.

40.3 Provide and install one layer of polyisocyanurate insulation, set in hot asphalt. Contractor to verify insulation thickness meets R-25 for energy code.

40.4 Provide and install 1-layer of half-inch (1/2") gypsum cover-board mechanically fastened to existing metal deck.

40.5 Provide and install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt.

40.6 Provide and install 1-layer of 67-mil nominal fleece back PVC membrane containing Elvaloy set in hot asphalt.

40.7 Provide and install new overflow scuppers adjacent to existing roof drains as shown on detail drawings.

40.8 Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.

40.9 Remove and replace all counter-flashings and replace with new stainless-steel metal.

Initials of Bidder: _____

40.10 Extend existing soil pipes to a height of eight inches (8") above finished roof surface.

40.11 Install crickets at the high side of each unit larger than twenty-four inches (24").

40.12 Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.

40.13 Replace all existing clamping ring bolts with stainless-steel bolts with washers.

40.14 All small piping is required to be supported by small pipe supports with rollers.

40.15 All measurements are the responsibility of the Contractor.

40.16 Contractor to recertify and reattach existing lightning protection.

40.17 Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.

40.18 Provide a two (2) year Contractors warranty.

40.19 All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

40.20 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for MISSOURI CITY BRANCH LIBRARY: $_____
For *Option 2*. (Pricing to include complete construction of the roof repairs of Missouri City Branch Library, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

Initials of Bidder: _____

41.0 SPECIFICATION AND PRICING FOR FORT BEND BOYS AND GIRLS CLUB :

41.1 Work shall include all labor and materials to provide a FULL RE-ROOF on Roof Areas B and C. The entire roofing system is to be removed to existing lightweight concrete roof deck on Area B.

41.2 Mechanically attach a base sheet to the lightweight concrete roof deck. Contractor to verify attachment method by pull test as directed by a 3rd party company such as OMG.

41.3 Adhere 2 layers of polyisocyanurate insulation with overlapping joints to meet R-25 R-value to mechanically fastened base sheet.

41.4 Provide and install 1/2 per foot tapered crickets between roof drains and/or primary scupper locations.

41.5 Provide and install 1-layer of half-inch (1/2") gypsum cover-board set in hot asphalt.

41.6 Provide and install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt.

41.7 Provide and install 1-layer of 67-mil nominal fleece back PVC membrane containing Elvaloy set in hot asphalt.

41.8 Remove and replace existing barrel roof assembly on Area C with similar Tee-lock standing seam roof system installing all necessary hardware and closures to maintain a waterproof facility.

41.9 Replace all rake and edge trim as required to install new metal panel roof system.

41.10 Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.

41.11 Apply new high-quality elastomeric paint to all tilt wall parapets to the leading edge of the tilt-wall panel.

41.12 Raise all RTU units to a height of ten inches (10") above finished roof surface.

41.13 Remove all vertical wall joint sealants and backer rods and replace with new sealant and backer rod.

41.14 Remove and replace all counter-flashings and replace with new stainless-steel metal.

Initials of Bidder: _____

41.15 Extend existing soil pipes to a height of eight inches (8") above finished roof surface.

41.16 Install crickets at the high side of each unit larger then twenty-four inches (24").

41.17 Reinstall any broken or damaged condensate lines.

41.18 Raise all small pipes to a height of fourteen inches (14") above finished roof surface and install small pipe supports with rollers per specifications.

41.19 Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.

41.20 Provide a two (2) year Contractors warranty.

41.21 All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.

41.22 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

Completion time _____ calendar days

Total Base Bid Pricing for FORT BEND BOYS AND GIRLS CLUB: $_____
(Pricing to include complete construction of the roof repairs of Fort Bend Boys and Girls Club, including all general, plumbing, mechanical, and electrical work as stated herein.) Installation shall be as per NRCA, SMACNA, SPRI, specifications, details and manufacturer's guidelines.

Initials of Bidder: _____

42.0 ADDITIONAL BID PRICING FOR UNFORESEEN REPAIRS:

The below prices are to remain in effect for a period of thirty (30) days from the bid due date.

42.1 Remove and replace wet or deteriorated insulation board: $_____ per square foot.

42.2 Remove and replace single-ply membrane to match exist: $_____ per board foot.

42.3 Remove and replace deteriorated LWC roof deck: $_____ per square foot.

42.4 Remove and replace damaged or deteriorated metal pan: $_____ per square foot.

42.5 Remove and replace deteriorated nailers: $_____ per board foot.

42.6 Remove and replace deteriorated wood decking: $_____ per square foot.

42.7 Provide and install through-wall system w/ 3-course brick removal: $_____ per linear foot.

42.8 Provide and install through-wall flashing with EIFS removal/repair: $_____ per linear foot.

42.9 Remove and replace damaged or rusted metal decking: $_____ per square foot.

42.10 Provide and install new overflow scupper per details: $_____ per scupper.

43.0 ADDITIONAL REQUIREMENTS:

43.1 Acknowledgement of preapproved concrete/landscape contractor. _____
(vendor initials)

43.2 Contractor to perform all corrective site work and provide name and references of these subs prior to starting work on site.

43.3 Provide site plan showing staging areas to accomplish the scope of work.

_____
(vendor initials)

43.4 Provide roof plan showing schedule of construction and location sequence of work. _____
(vendor initials)

43.6 Provide name and attach qualifications of superintendent. _____

Initials of Bidder: _____

43.6 Provide name and attach qualifications of project manager. _____

43.7 Attach list of current work load. _____
(vendor initials)

43.8 Company owner is required to be in attendance at each weekly meeting. _____
(vendor initials)

44.0 AWARD:

This contract will be awarded to the low bidder per the base bid and/or alternate bid, per location.

45.0 TEXAS ETHICS COMMISSION FORM 1295:

45.1 Effective January 1, 2016 all contracts executed by Commissioners Court, regardless of the dollar amount, will require completion of Form 1295 "Certificate of Interested Parties", per the new Government Code Statute §2252.908. All vendors submitting a response to a formal Bid, RFP, SOQ or any contracts, contract amendments, renewals or change orders are required to complete the Form 1295 online through the State of Texas Ethics Commission website. Please visit: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

45.2 On-line instructions:

45.2.1 Name of governmental entity is to read: Fort Bend County.

45.2.2 Identification number used by the governmental entity is: B20-088.

45.2.3 Description is the title of the solicitation: Various Roof Replacement Projects

45.3 Apparent low bidder(s) will be required to provide the Form 1295 within three (3) calendar days from notification; however, if your company is publicly traded you are not required to complete this form.

46.0 STATE LAW REQUIREMENTS FOR CONTRACTS:

The contents of this section are required by Texas Law and are included by County regardless of content.

46.1 Agreement to Not Boycott Israel Chapter 2270 Texas Government Code: By signature on vendor form, Contractor verifies Contractor does not boycott Israel and will not boycott Israel during the term of this Contract.

46.2 Texas Government Code Section 2251.152 Acknowledgment: By signature on vendor form, Contractor represents pursuant to Section 2252.152 of the Texas

Initials of Bidder: _____

Government Code, that Contractor is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153.

47.0 HUMAN TRAFFICKING:

By acceptance of this contract, Contractor acknowledges that Fort Bend County is opposed to human trafficking and that no County funds will be used in support of services or activities that violate human trafficking laws

48.0 ADDITIONAL REQUIRED FORMS:

All vendors submitting are required to complete the attached and return with submission:

48.1 Required Proof of Insurance

48.2 Vendor Form

48.3 W9 Form

48.4 Tax Form/Debt/Residence Certification

48.5 Contractor Acknowledgement of Stormwater Management Program

48.6 No Bid Questionnaire

Initials of Bidder: _____

Contract Sheet
Bid 20-088

THE STATE OF TEXAS
COUNTY OF FORT BEND

This memorandum of agreement made and entered into on the 7th day of July, 2020, by and between Fort Bend County in the State of Texas (hereinafter designated County), acting herein by County Judge KP George, by virtue of an order of Fort Bend County Commissioners Court, and Gutier LLC (hereinafter designated Contractor).

(company name)

WITNESSETH:

The Contractor and the County agree that the bid and specifications for the **Roof Replacement Projects at Various Locations for Fort Bend County** which are hereto attached and made a part hereof, together with this instrument and the bond (when required) shall constitute the full agreement and contract between parties and for furnishing the items set out and described; the County agrees to pay the prices stipulated in the accepted bid.

It is further agreed that this contract shall not become binding or effective until signed by the parties hereto and a purchase order authorizing the items desired has been issued.

Executed at Richmond, Texas this 28 day of July 20 20.

KP George

County Judge KP George

Fort Bend County, Texas

By: _____
County Judge, KP George

By: _____
Signature of Contractor

By: Jorge A. Mancilla Principal
Printed Name and Title

Form **W-9**
(Rev. December 2014)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Gutier LLC

2 Business name/disregarded entity name, if different from above
47-2318149

3 Check appropriate box for federal tax classification; check only **one** of the following seven boxes:
☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☑ S Corporation ☐ Partnership ☑ Trust/estate
☑ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ C
Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner.
☐ Other (see instructions) ▶ N/A

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
Exempt payee code (if any) N/A
Exemption from FATCA reporting code (if any) N/A
(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.)
Gutier LLC

Requester's name and address (optional)

6 City, state, and ZIP code
12930 Dairy Ashford Rd #903 Sugar Land, TX 77478

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number
☐☐☐ - ☐☐ - ☐☐☐☐

or

Employer identification number
47-2318149

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here Signature of U.S. person ▶ [signature] Date ▶ 7/7/2020

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at *www.irs.gov/fw9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding?* on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

Job No.: _____

TAX FORM/DEBT/ RESIDENCE CERTIFICATION
(for Advertised Projects)

Taxpayer Identification Number (T.I.N.): 47-2318149

Company Name submitting Bid/Proposal: Gutier LLC

Mailing Address: 12930 Dairy Ashford Rd #903 Sugar Land, TX 77478

Are you registered to do business in the State of Texas? (Yes) No

If you are an individual, list the names and addresses of any partnership of which you are a general partner or any assumed name(s) under which you operate your business
7/7/2020

I. **Property:** List all taxable property in Fort Bend County owned by you or above partnerships as well as any d/b/a names. Include real and personal property as well as mineral interest accounts. (Use a second sheet of paper if necessary.)

Fort Bend County Tax Acct. No.*	Property address or location**
	N/A
	N/A
	N/A
	N/A

** This is the property account identification number assigned by the Fort Bend County Appraisal District.*
*** For real property, specify the property address or legal description. For business personal property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored at a warehouse or other location.*

II. **Fort Bend County Debt** - Do you owe any debts to Fort Bend County (taxes on properties listed in I above, tickets, fines, tolls, court judgments, etc.)?

Yes ✓ No If yes, attach a separate page explaining the debt.

III. **Residence Certification** - Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Fort Bend County requests Residence Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

✓ I certify that Gutier LLC [Company Name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

✓ I certify that N/A [Company Name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is N/A [City and State].

Mandatory Form

Contractor Acknowledgement of Stormwater Management Program

I hereby acknowledge that I am aware of the stormwater management program and standard operating procedures developed by Fort Bend County in compliance with the TPDES General Permit No. TXR040000. I agree to comply with all applicable best management practices and standard operating procedures while conducting my services for Fort Bend County. I agree to conduct all services in a manner that does not introduce illicit discharges of pollutants to streets, stormwater inlets, drainage ditches or any portion of the drainage system. The following materials and/or pollutant sources must not be discharged to the drainage system as a result of any services provided:

1. Grass clippings, leaves, mulch, rocks, sand, dirt or other waste materials resulting from landscaping activities, (except those materials resulting from ditch mowing or maintenance activities)
2. Herbicides, pesticides and/or fertilizers, (except those intended for aquatic use)
3. Detergents, fuels, solvents, oils and/or lubricants, other equipment and/or vehicle fluids,
4. Other hazardous materials including paints, thinners, chemicals or related waste materials,
5. Uncontrolled dewatering discharges, equipment and/or vehicle wash waters,
6. Sanitary waste, trash, debris, or other waste products
7. Wastewater from wet saw machinery,
8. Other pollutants that degrade water quality or pose a threat to human health or the environment.

Furthermore, I agree to notify Fort Bend County immediately of any issue caused by or identified by:

Gutier LLC

(Company/Contractor)

that is believed to be an immediate threat to human health or the environment.

Contractor Signature

7/7/2020

Date

Jorge A. Mancilla

Printed Name

Principal

Title

GUTIER

MICHAEL GUTIERREZ

EXPERIENCE

GUTIER - 2015 – PRESENT

PROJECT MANAGER

- Plan all construction operations and schedules to meet project deadlines
- Ensure adherence to all H.S.E. and Quality standards
- Collaborate with consultants, engineers, architects, etc. to determine specifications

FLUOR ENTERPRISES, INC. - 2006 - 2015

- Chevron Conoco Phillips - USGC Petrochemicals Project – Project Manager
- Construction & Fabrication – Integrated Scaffold Program – Program Director
- Construction & Fabrication – North & South America – Construction Manager
- Construction & Fabrication – North & South America – Commercial Strategies
- Dow Gulfstream Program – PDH, PU&I, LHC-9 - Contracts Manager
- British Petroleum (BP) - Whiting Refinery Modernization Project – Contracts Manager
- Renewable Energy Corporation (REC) – Contracts Administrator

WEBBER / FERROVIAL - 2004 - 2006

- TXDOT – 610 & 45 remediation program – Construction engineer
- TXDOT – 99 & Hwy 6 Overpass Bridge – Construction engineer

B.G. CONSTRUCTION & ROOFING - 2001 - 2004

- Commercial Projects - Multi Projects – Project Manager

EDUCATION

University of Houston

- B.S., Construction Management
- Minor – Marketing & Finance

TRAINING

- OSHA 30 HR
- Project Management Institute (PMI)
- Construction Technology Institute
- The New Leader (Harvard Business)
- Contract Management Bootcamp (200hrs+)
- Karrass Negotiating
- PERI UP Academy – Scaffold & Formwork
- Master Facilitation
- International Business Practices & Ethics

PROFESSIONAL ORGANIZATIONS

- National Roofing Contractors Association (NRCA)
- Construction Industry Institute (CII)
- National Contract Management Association (NCMA)
- University of Houston - Alumni

EXPERIENCE

GUTIER - 2015 -PRESENT

- **Commercial Projects – Superintendent**
  - Oversee and manage ongoing projects
  - Review plans and specifications to meet all requirements
  - Manage employees on projects
  - Ensure all material and equipment needed for each project was available on site.

A & L SYSTEMS, INC. - 2013 - 2015

- **Commercial Projects – Forman**
  - Oversee all projet operations

JM EAGLE - 1997 - 2000

- Project Coordinator
  - Oversee and manage multiple ongoing projects

PROJECT EXPERIENCE (PARTIAL LIST)

- Aldine Independent School District (AISD) Education Center – Houston, TX
- Texas A&M University - Prairie view – Agriculture Building
- Carver High School – Houston, TX
- Schlumberger Ardmore – Houston, TX
- One Riverway Place – San Antonio, TX
- Mary Bird Perkins Cancer Center – New Orleans, LA
- Mall of Louisiana Boulevard – Baton Rouge, LA
- Louis Armstrong New Orleans International Airport – New Orleans, LA
- East Baton Rouge Parish School System (Over 10 Schools) – Baton Rouge, LA

TRAINING

- OSHA 10 HR
- Forklift Certified
- CERTA Certified
- Man lift Certified

SKILLS

- On-site coordination of project operations
- Monitor manpower productivity and conduct
- Coordinate schedule and resources on site
- Monitor and inspect daily construction activities for conformance on the project
- Ensure all safety and quality policies and procedures are implemented

GUTIER

MAURILIO GUTIERREZ

EXPERIENCE

GUTIER - 2015 - PRESENT

- H.S.E. & Quality Manager
- Commercial Projects - Multi Project - Project Manager

B.G. CONSTRUCTION & ROOFING - 1985 - 2015

- Commercial Projects - Owner
- Commercial Projects - Multi Project - Project Manager

PROJECT EXPERIENCE (RECENT)

- Flint Hills Resources – Port Arthur, TX
- Houston Airport – Houston, TX
- Chevron ConocoPhillips – Baytown, TX
- Memorial Hermann – Gessner – Houston, TX
- Schlumberger Ardmore – Houston, TX
- M.D. Anderson West Houston – Houston, TX
- Mall Del Norte – Laredo, TX
- Texas A&M University - College Station, TX

TRAINING

- OSHA 30 HR
- Forklift Certification
- CERTA Certification
- Man lift Certification

SKILLS

- On-site coordination of project operations
- Monitor manpower productivity and conduct
- Coordinate schedule and resources on site
- Monitor and inspect daily construction activities for conformance on the project
- Ensure all safety and quality policies and procedures are implemented

GUTIER

FORT BEND COUNTY: B20-088
CINCO RANCH LIBRARY

PROJECT SUMMARY

GUTIER

FORT BEND COUNTY: B20-088
FULSHEAR BRANCH LIBRARY

PROJECT SUMMARY

Staging Area 1

GUTIER

FORT BEND COUNTY: B20-088
SUGAR LAND LIBRARY

PROJECT SUMMARY

Staging Area 1

GUTIER

FORT BEND COUNTY: B20-088
5TH STREET COMMUNITY CENTER

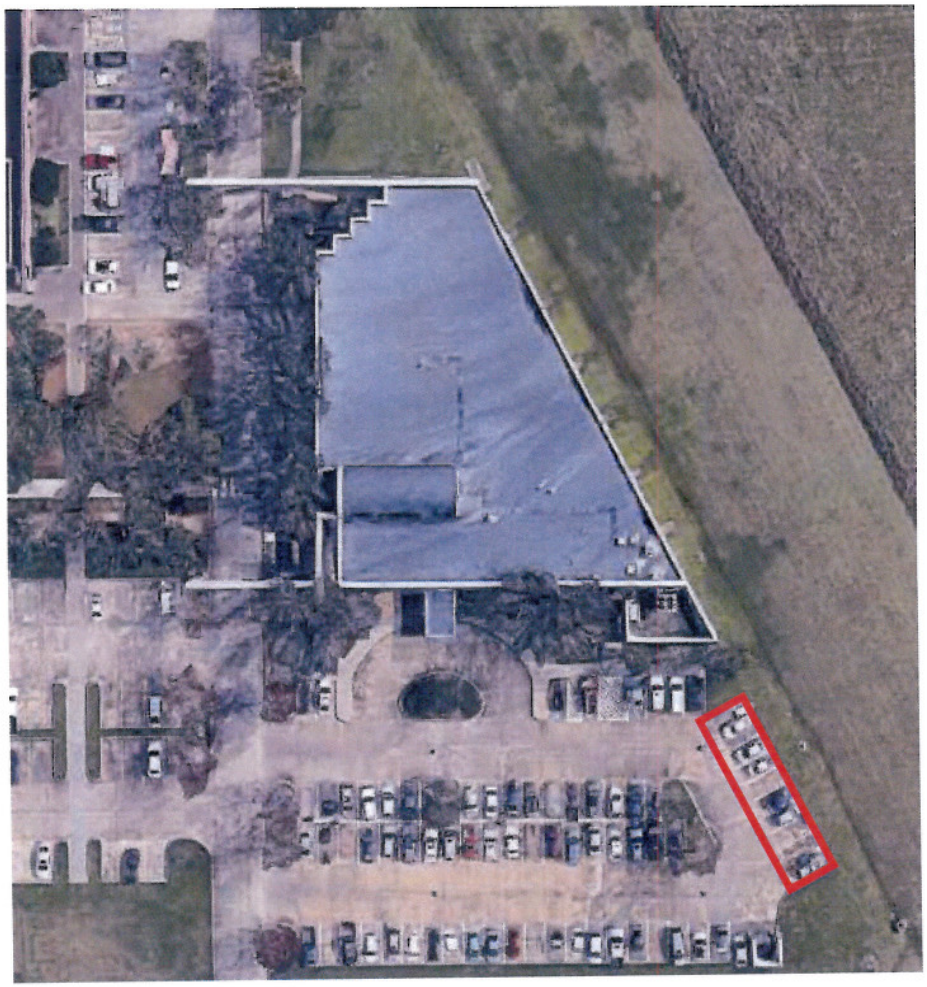
PROJECT SUMMARY

Staging Area 1

GUTIER

FORT BEND COUNTY: B20-088
MISSOURI CITY BRANCH
LIBRARY

PROJECT SUMMARY



Staging Area 1

GUTIER

FORT BEND COUNTY: B20-088
FORT BEND BOYS AND GIRLS CLUB

PROJECT SUMMARY

Staging Area 1

GUTIER

Gutier LLC
12930 Dairy Ashford Rd.
Sugar Land, Texas 77478
O 832.830.8292
www.gutier.com

July 7, 2020

Dear Fort Bend County Purchasing Department:

Gutier LLC acknowledges that the company owner shall be in attendance at each weekly meeting for the duration of this project.

Sincerely,
John Shade
Commercial Manager

GUTIER

Gutier LLC
12930 Dairy Ashford Rd.
Sugar Land, Texas 77478
O 832.830.8292
www.gutier.com

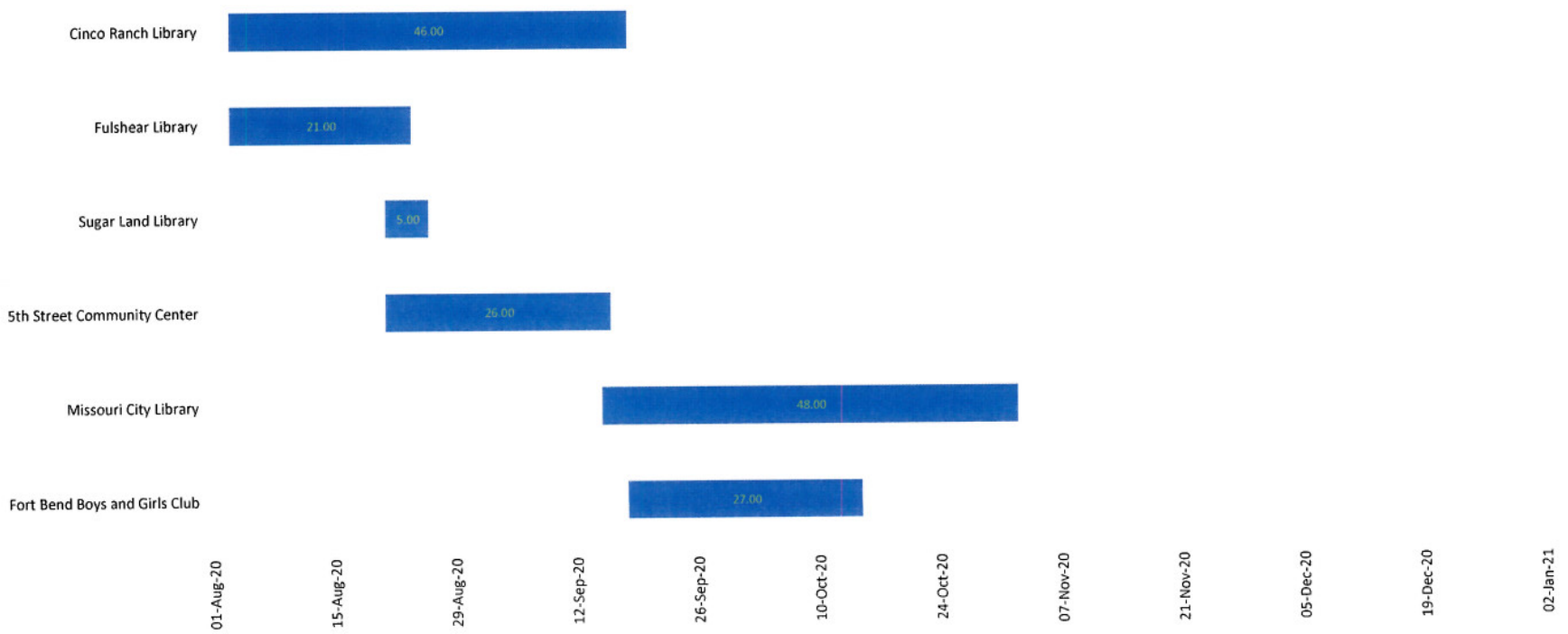
July 7, 2020

Dear Fort Bend County Purchasing Department:

Gutier LLC has one job open during the timeframe that these projects are set, consisting of 30% of our capacity.

Sincerely,
John Shade
Commercial Manager

Project Schedule - B20-088 - Fort Bend County Various Roof Repairs and Replacements



ARMKO INDUSTRIES, INC.
1320 SPINKS ROAD
FLOWER MOUND, TX 75028
972.874.1388
www.armko.com

DATE: June 30, 2020

FROM: Dennis Leifrig

NO. OF PAGES: 22

REGARDING:

ADDENDUM NO. 1 FOR
FORT BEND COUNTY – MULTIPLE ROOF
REPLACEMENTS AND REPAIRS
PROJECT NO. B22-088

Contractor shall incorporate the following **additions, deletions and clarifications** into the proposal for this project to be submitted by **2:00 P.M., July 7, 2020 ATTN: Cheryl Krejci CPPB, Senior Buyer, 301 Jackson Street, Suite 201, Richmond TX 77406**. Contractor shall acknowledge receipt and consideration of this Addendum No. 1 on the Proposal Form.

The addendum serves to clarify, revise, and supersede information in the Project Manual, the Drawings, and previously issued Addenda. The following **additions, deletions and clarifications** shall be made part of the plans and specifications for this project:

Item 1 for Revised Proposal:

1. **Revised Proposal** form attached shall be used to submit bids for this project.

2. Section 07 41 13, Metal R-Panel Roof System, Page 07 1 13 – 1, Materials, Paragraph 2.01, Subparagraph A, delete in its entirety and replace with the following:

    A. Fluorocarbon Coating:
        1. Full strength 70% Kynar 500® coating baked on for fifteen (15) minutes at 450°F to dry-film thickness of 1.0 mil.
        2. 15% reflective gloss (ASTM D 523). (Low Gloss).
        3. 0.3 mil baked on epoxy primer.
        4. Backer side of panels to be painted with an off-white polyester coating.
        5. Top Side Color: As selected by Architect from manufacturer's full range of color offerings, including metallic and custom colors

Item 2 for Revised Specification:

2. **Delete Specification Section** 07 41 13.1 in its entirety and replace with one attached.

Item 3 Questions and Answers:

3. **Question**: Will you allow VERSIFLEECE KEE HP?

   Answer: Verisfleece Kee HP is not an approved membrane, no documentation has been provided to ensure that membrane meets and exceeds the requirements

4. **Question:** Will you allow Cold Process Asphalt?

   Answer: Cold process will be allowable if there is no additional cost to the client AND it is required by an approved membrane manufacturer to meet wind uplift.

5. **Question:** Will the Core information be released soon?

   Answer: Core information, as seen in the field and used at contractor's own discretion has been provided to the County purchasing department

END

Attachment: Revised Proposal, 8 pages
Core Information, 1 page
Section 07 41 13.1 Metal Standing Seam, 8 pages
Sign-In Sheet, 3 pages

BASE PROPOSAL 1: CINCO RANCH BRANCH LIBRARY

- Work shall include all labor and materials to provide a RECOVER. The entire roofing system is to be power broomed and cleaned to accept a new mechanically fastened gypsum coverboard.
- Install 1-layer of 1/2-inch gypsum coverboard mechanically fastened to existing metal deck.
- Install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt
- Install 1-layer of 80mil fleece back PVC membrane containing Elvaloy set in hot asphalt.
- Install new overflow scuppers adjacent to existing roof drains as shown on detail drawings
- Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.
- On roof area B, infill existing rear of gables with wood blocking, Cold form framing, insulation, waterproofing, hat channels and flush metal wall panels to eliminate the base flashing condition at the steel angle.
- Remove and replace all counter flashings and replace with new stainless-steel metal.
- Extend existing soil pipes to a height of eight inches (8") above finished roof surface.
- Install crickets at the high side of each unit larger than 24-inches
- Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.
- Replace all existing clamping ring bolts with stainless-steel bolts with washers
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- All small piping is required to be supported by small pipe supports with rollers.
- All measurements are the responsibility of the Contractor.
- Contractor to recertify and reattach existing lightning protection.
- Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.
- Provide a two (2) year Contractors warranty.
- All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

TWO HUNDRED SEVENTY-SIX THOUSAND SIXTY-SIX Dollars $ 276,066.00

ALTERNATE PROPOSAL 1: CINCO RANCH BRANCH LIBRARY

- Work shall include all labor and materials to provide a FULL REROOF. The entire roofing system is to be removed down to the existing metal roof deck
- Install one layer of mechanically attached polyisocyanurate insulation to existing metal roof deck
- Install one layer of polyisocyanurate insulation, set in hot asphalt to first layer. Contractor to verify insulation thickness meets R-25 for energy code.
- Install 1-layer of 1/2-inch gypsum coverboard set in hot asphalt.
- Install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt
- Install 1-layer of 80mil fleece back PVC membrane containing Elvaloy set in hot asphalt
- Install new overflow scuppers adjacent to existing roof drains as shown on detail drawings
- Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.
- On roof area B, infill existing rear of gables with wood blocking, Cold form framing, insulation, waterproofing, hat channels and flush metal wall panels to eliminate the base flashing condition at the steel angle.
- Remove and replace existing standing seam panel system on roof area B front and rear gable ends.
- Install premium waterproofing membrane for high temp conditions at standing seam panels.
- Remove and replace all counter flashings and replace with new stainless-steel metal.
- Extend existing soil pipes to a height of eight inches (8") above finished roof surface.

- Install crickets at the high side of each unit larger than 24-inches
- Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.
- Replace all existing clamping ring bolts with stainless-steel bolts with washers
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- All small piping is required to be supported by small pipe supports with rollers.
- All measurements are the responsibility of the Contractor.
- Contractor to recertify and reattach existing lightning protection.
- Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.
- Provide a two (2) year Contractors warranty.
- All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

ADD/DELETE (CIRCLE ONE) ONE HUNDRED EIGHTY-FOUR THOUSAND SEVEN HUNDRED THIRTY-TWO Dollars $ 184,732.00

BASE PROPOSAL 2: BOB LUTTS FULSHEAR BRANCH LIBRARY

- Work shall include all labor and materials to provide MAINTENANCE REPAIRS.
- Re-crimp all standing seam metal caps, replace any that are missing or damaged.
- Rework 2 existing metal valleys on both the front and rear of the building to maintain a waterproof condition.
- Cut-off and remove existing gutters. Install new gutters and downspout inlets into existing leader lines.
- Remove and replace thru-wall flashing at all metal to stucco conditions. Install new stainless-steel thru-wall metal and new coated metal counter flashing. Repair EIFS above thru-wall flashing.
- Apply elastomeric paint to all EIFS wall conditions to match existing building color.
- Provide a two (2) year Contractors warranty.
- This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE 7, the specifications and manufacturer's guidelines.

THIRTY-FIVE THOUSAND FIVE HUNDRED FORTY-SIX Dollars $ 35,546.00

ALTERNATE PROPOSAL 2: BOB LUTTS FULSHEAR BRANCH LIBRARY

- Work shall include all labor and materials to provide a FULL REROOF.
- Install roof purlin type system with EPS insulation installed between the flutes of existing standing seam roof panels to the height of the rib.
- Install new standing seam roofing panel system with a single lock standing seam panel, McElroy by design.
- Raise and reinstall new stainless-steel thru-wall flashing and repair EIFS as required to complete repair.
- Paint existing and new EIFS wall system with new elastomeric paint, contractor to match existing color with owner approval.
- Install new gutters and downspouts to include downspout inlets into existing leader lines.
- Raise existing vent pipe flashings to provide 8-inches flashing height.
- Provide manufacturer's 20 year, full system, non-prorated, no dollar limit weathertight warranty to be jointly signed by the manufacturer and the Panel Applicator
- Provide a two (2) year Contractors warranty.
- This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE 7, the specifications and manufacturer's guidelines.

ADD/DELETE (CIRCLE ONE) ONE HUNDRED SIXTEEN THOUSAND TWO HUNDRED FOURTEEN Dollars $ 116,214.00

BASE PROPOSAL 3: SUGARLAND BRANCH LIBRARY

- Work shall include all labor and materials to provide MAINTENANCE REPAIRS associated with a PVC roof system to include installation of new sheet metal coping and continuous metal cleat.
- Repairs to include 100 linear feet of strip in membrane in various locations
- Removal and installation of sealant at all conditions associated with membrane termination.
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- Replace missing and broken parts on existing roof hatches.
- Provide a One (1) year Contractors warranty pertaining to the repairs made at the time of maintenance repairs.
- This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

TEN THOUSAND SEVEN-HUNDRED NINETY-FOUR Dollars $ 10,794.00

ALTERNATE PROPOSAL 3: SUGARLAND BRANCH LIBRARY

- Work shall include all labor and materials to provide REPAIRS associated with **Base Proposal 4**
- Installation of a high quality, polyurethane liquid applied roof system to extend the life of the roofing system.
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- Provide a manufacturer's ten (10) year waterproofing warranty
- Provide a two (2) year Contractors warranty.
- This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

ADD to BASE Proposal 3 SIXTY-TWO THOUSAND TWO HUNDRED EIGHTY-SIX Dollars $ 62,286.00

BASE PROPOSAL 4: 5TH STREET COMMUNITY CENTER

- Work shall include all labor and materials to provide a FULL REROOF over the gym shown as A. The entire roofing system is to be removed to existing open purlins.
- Install new R-25 vinyl-back insulation over open purlins
- Install a minimum of a 22ga White R-panel roof system to include all accessories to maintain a watertight building.
- Install new gutter and downspout system to match existing size and downspout locations connecting to storm sewer or concrete splash block as required
- Install transition flashing between areas A and B extending flashing a minimum of 24-inches up slope to prevent water migration. Include sealant tape, sealant and closure strips as required.
- Treat existing fasteners and fasteners locations with rust inhibitor and replace any deteriorated or missing fastener with one-size large fasteners on areas B thru G.
- Coat existing R-panel roof system on area B with a high quality, polyurethane liquid applied roof system, treating any existing hole from previous fasteners with approved manufacturer sealant prior to roofing system application.
- Install all new sheet metal closures at all rake, ridge cap and eave as required to meet manufacturer requirements.
- Remove and replace all sealants present at all conditions across the remaining building standing seam roof system.
- Install new vent pipe neoprene bellows with one size larger, where applicable, apply new sealants and stainless-steel fasteners.
- This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

EIGHTY-EIGHT THOUSAND TWO HUNDRED NINETY-ONE Dollars $ 88,291.00

ALTERNATE PROPOSAL 4: 5TH STREET COMMUNITY CENTER

- Work shall include all labor and materials to provide all items associated with **Base Proposal 4**
- Installation of a high quality, polyurethane liquid applied roof system to the remaining roof areas. Install a base coat to mask the present color and install a white, energy efficient membrane.
- Provide a manufacturer's ten (10) year waterproofing warranty
- Provide a two (2) year Contractors warranty.
- This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

ADD to BASE Proposal 4 SEVENTY THOUSAND SEVEN HUNDRED TWENTY-SIX Dollars $ 70,726.00

BASE PROPOSAL 5: MISSOURI CITY BRANCH LIBRARY

- Work shall include all labor and materials to provide a RECOVER. The entire roofing system is to be power broomed and cleaned to accept a new mechanically fastened gypsum coverboard.
- Install 1-layer of 1/2-inch coverboard mechanically fastened to existing metal deck.
- Install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt
- Install 1-layer of 80mil fleece back PVC membrane containing Elvaloy set in hot asphalt.
- Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.
- Remove and replace all counter flashings and replace with new stainless-steel metal.
- Extend existing soil pipes to a height of eight inches (8") above finished roof surface.
- Raise existing J-trim at Metal panel barrel roof to allow 10-inches flashing height.
- Install crickets at the high side of each unit larger than 24-inches
- Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.
- Replace all existing clamping ring bolts with stainless-steel bolts with washers
- Install crickets at parapet between scupper openings to direct drainage to scuppers.
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- All small piping is required to be supported by small pipe supports with rollers.
- All measurements are the responsibility of the Contractor.
- Contractor to recertify and reattach existing lightning protection.
- Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.
- Provide a two (2) year Contractors warranty.
- All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

TWO HUNDRED THIRTY-EIGHT THOUSAND SIX HUNDRED NINETY-SEVEN Dollars $ 238,697.00

ALTERNATE PROPOSAL 5: MISSOURI CITY BRANCH LIBRARY

- Work shall include all labor and materials to provide a FULL REROOF. The entire roofing system is to be removed down to the existing metal roof deck
- Install one layer of mechanically attached polyisocyanurate insulation
- Install one layer of polyisocyanurate insulation, set in hot asphalt. Contractor to verify insulation thickness meets R-25 for energy code.
- Install 1-layer of 1/2-inch gypsum coverboard mechanically fastened to existing metal deck.
- Install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt
- Install 1-layer of 80mil fleece back PVC membrane containing Elvaloy set in hot asphalt
- Install new overflow scuppers adjacent to existing roof drains as shown on detail drawings
- Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.
- Remove and replace all counter flashings and replace with new stainless-steel metal.
- Extend existing soil pipes to a height of eight inches (8") above finished roof surface.
- Install crickets at the high side of each unit larger than 24-inches
- Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.
- Replace all existing clamping ring bolts with stainless-steel bolts with washers
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- All small piping is required to be supported by small pipe supports with rollers.
- All measurements are the responsibility of the Contractor.
- Contractor to recertify and reattach existing lightning protection.
- Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.
- Provide a two (2) year Contractors warranty.
- All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

ADD/DELETE (CIRCLE ONE) ONE HUNDRED TWENTY-SIX THOUSAND FOUR HUNDRED SEVENTEEN. Dollars $ 126,417

BASE PROPOSAL 6: FORT BEND BOYS AND GIRLS CLUB:

- Work shall include all labor and materials to provide a FULL RE-ROOF on roof areas B and C. The entire roofing system is to be removed to existing lightweight concrete roof deck on area B.
- Mechanically attach a base sheet to the lightweight concrete roof deck. Contractor to verify attachment method by pull test as directed by a 3rd party company such as OMG.
- Adhere 2 layers of polyisocyanurate insulation with overlapping joints to meet R-25 R-value to mechanically fastened base sheet.
- Install 1/2 per foot tapered crickets between roof drains and/or primary scupper locations
- Install 1-layer of 1/2-inch gypsum coverboard set in hot asphalt
- Install 90-mil smooth sanded base ply as part of a multi-ply PVC roof system set in hot asphalt
- Install 1-layer of 80mil fleece back PVC membrane containing Elvaloy set in hot asphalt.
- Remove and replace existing barrel roof assembly on **Area C** with a 238t panel system, or similar, roof system fastened to existing roof deck installing all necessary hardware and closures to maintain a waterproof facility.
- Install insulation to meet energy code and a minimum of R-25.
- Replace all rake and edge trim as required to install new metal panel roof system.
- Raise all wall and curb flashings to a height of ten inches (10") above finished roof surface.
- Apply new high-quality elastomeric paint to all tilt wall parapets to the leading edge of the tilt-wall panel,
- Raise all RTU units to a height of ten inches (10") above finished roof surface.
- Remove all vertical wall joint sealants and backer rods and replace with new sealant and backer rod.
- Remove and replace all counter flashings and replace with new stainless-steel metal.
- Extend existing soil pipes to a height of eight inches (8") above finished roof surface.
- Install crickets at the high side of each unit larger then 24-inches
- Reinstall any broken or damaged condensate lines
- Remove, wire brush, and paint all existing drain strainers and clamping rings with aluminized paint and replace any missing, damaged, or broken drain pieces. Contractor to verify each roof drain is unobstructed and clear.
- Replace all existing clamping ring bolts with stainless-steel bolts with washers
- Clean, wire brush, treat rust and paint existing roof hatch(s) with aluminized paint.
- Raise all small pipes to a height of 14" above finished roof surface and install small pipe supports with rollers per specifications
- Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.
- Provide a two (2) year Contractors warranty.
- All mechanical, electrical, plumbing disconnections shall be the responsibility of the contractor. This is considered a turn-key project, Fort Bend County is to furnish nothing. All work is the responsibility of the contractor.
- All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications and manufacturer's guidelines.

ONE HUNDRED FORTY-EIGHT THOUSAND SIX HUNDRED SEVENTY-FOUR Dollars $ 148,674

UNIT PRICE PROPOSAL:

1. Remove and replace wet or deteriorated insulation board: $ 8.50 per square foot
2. Remove and replace single-ply membrane to match exist: $ 5.00 per board foot
3. Remove and replace deteriorated LWC roof deck: $ 10.00 per square foot
4. Remove and replace damaged or deteriorated metal pan: $ 18.00 per square foot

5. Remove and replace deteriorated nailers: $ 8.00 per board foot.
6. Remove and replace deteriorated wood decking: $ 9.00 per square foot.
7. Install thru-wall system w/ 3-course brick removal $ 220.00 per linear foot
8. Install thru-wall flashing with EIFS removal/ repair : $ 65.00 per linear foot
9. Remove and replace damaged or rusted metal decking: $ 11.00 per square foot
10. Install new overflow scupper per details $ 425.00 per scupper

Contractor agrees that prices quoted above shall remain in effect for a period of thirty (30) days from date of bid. _____ **Contractor Initial**

Acknowledgement of preapproved concrete/landscape contractor _____ (initials)

"Contractor to perform all corrective site work and provide name and references of these subs prior to starting work on site"

In submitting this proposal, it is understood that the contractor shall provide part of this proposal and contain the following information:

a. Site plan showing staging areas to accomplish the scope of work _____
b. Roof plan showing schedule of construction and location sequence of work _____
c. Name and qualifications of superintendent _____
d. Name and qualifications of Project Manager _____
e. List current work load _____
f. Acknowledgment that Company owner will be in attendance at each weekly meeting _____

Acknowledgement of items a-f _____ (initials)

Fort Bend County 2020 Roof replacement and Repairs Project
Project B20-088

1. Cinco Ranch Library
   Metal Deck
   3.5" Iso insulation
   2-ply Modified

2. Fulshear Branch Library
   2x wood purlins over metal structure
   EPS insulation between wood purlins
   Plywood deck over purlins
   Tee-panel lock metal panels

3. Sugarland Branch Library
   Metal Deck
   2" Iso insulation
   PVC Single-ply roof system

4. Missouri City Library
   Metal Deck
   2" Iso insulation
   2-ply Modified

5. 5th Street Community Center
   Roof Area A- R-panel Roof system with vinyl backed insulation over open framing
   Roof area B- R-panel Roof system with vinyl backed insulation over open framing
   All others areas- Single lock standing seam metal panels with unknown attachment and insulation

6. Hobby Boys and Girls Club
   Roof Area A- Lightweight concrete roof deck over metal pan
   Roof area B- Tee-lock metal panel roof system over unknown insulation over a solid deck material

NOTE: Contractors are to use this information at their own risk to develop bid documents in reference to the project noted above.

SECTION 07 41 13.1
METAL ROOF PANELS

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES
1. Standing-seam metal roof panels, including trim and accessories
2. RELATED SECTIONS
   a) Section 07 22 16 - Roof Board Insulation
   b) Section 07 62 00 - Sheet Metal and Miscellaneous Accessories
   c) Section 07 72 00 - Roof Accessories
   d) Section 07 92 00 – Sealants and Caulking

1.2 REFERENCES

A. AISI S-100 – North American Specification for the Design of Cold-Formed Steel Structural Members.

B. ASCE-7: American Society of Civil Engineers -Minimum Design Loads for Buildings and Other Structures; version adopted by local Building Code authority having jurisdiction.

C. ASTM A792 - Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

D. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding System by Uniform Static Air Pressure Difference

E. ASTM E1646 - Standard Test Method for Rate of Water Penetration Through Exterior Metal Roof Panel Systems By Uniform Static Air Pressure Difference.

F. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.

G. ASTM E2140 - Standard Test method for water penetration of metal roof panel systems by static water pressure head.

H. Factory Mutual 4471 Appendix G - Susceptibility to Leakage Test Procedure for Class 1 Panel Roofs.

I. UL 580 - Tests for Uplift Resistance of Roof Assemblies.

J. UL 1897 - Uplift Tests for Roof Covering Systems.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meetings:
1. Schedule meeting to discuss roof project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements before start of work onsite.

2. Required attendees: Contractor, metal deck & roof installer, and any other subcontractors who have equipment penetrating the roof or Work that requires roof access or traffic.

1.4 SUBMITTALS

A. Product Data: Manufacturer literature indicating product specifications, installation instructions, and standard construction details for specified products.

B. Shop Drawings: To be prepared by metal roof system manufacturer.
1. Submit roof plan showing panel layout, profiles, components, accessories, finish colors, gutters and downspouts as applicable.
   a) Indicate layout of roofing panels and roof panel sizes, including custom fabricated roofing panels if indicated, indicate each trim condition.
   b) Include details of each condition of installation, including the locations and types of fasteners, sealants and accessories. Indicate locations, gauges, shapes, and methods of attachment of all panels, accessories and trim.
   c) Indicate products/materials required for construction activities of this section not supplied by manufacturer of products of this section.
   d) Indicate locations of field applied sealant.
   e) Indicate locations of field worked conditions.
2. Roof Panel Attachment:
   a) Roof plan with wind uplift pressure calculations at field, corner and perimeter areas according to version of ASCE-7 referenced by locally-adopted Building Code and the authority having jurisdiction.
   b) Roof plan indication roof clip spacing pattern at field, corner, perimeters and where panels are to be fixed from thermal movement.
   c) Roof panel attachment plan must be stamped by licensed engineer in State in which project is constructed, certifying roof attachment meets local Building Code requirements for wind uplift.

C. Samples:
1. Submit two samples, 12" long, full width panel, showing metal gage, and seam.
2. Two samples each for roof panel clip, bearing plate and clip fastener.
3. Submit color samples for Architect's selection.
4. Submit sample warranties:
   a) Manufacturer Finish Warranty
   b) Manufacturer Weathertightness Warranty complying with this Specification
   c) Installer Warranty

D. Certificates:
1. Submit roof panel manufacturer's certification that fasteners, clips, backup plates, closures, roof panels and finishes meet the specification requirements.
2. Submit roof panel manufacturer's certification that installer meets requirements to install roof system and is qualified to obtain required warranties.

E. Delegated Design Submittals: Submit engineering calculations indicating wind uplift pressure calculations according to local building code for project location with respect to appropriate Importance Factor, Exposure category and Safety Factor. Calculations shall be sealed by a professional engineer licensed to practice structural engineering in the state in which project is located.

F. Test and Evaluation Reports - Certified test results that indicate roof system meets or exceeds design and performance criteria. Testing to include:
   1. Static Water Testing Certification: Manufacturers test data, signed and sealed by a registered professional engineer, in accordance with FM4471 Appendix G, and pass with no leakage. The test specimen must successfully withstand being submerged under 6" of water for a minimum period of 7 days.
   2. ASTM E1680 - Manufacturer's test data, signed and sealed by a registered professional engineer
   3. ASTME1646 - Manufacturer's test data, signed and sealed by a registered professional engineer, indicating no water penetration up to 20 pounds per square foot differential pressure.
   4. ASTM E1592 - Manufacturers test data, signed and sealed by a registered professional engineer, substantiating that roof system will meet the allowable wind pressures using an appropriate Factor of Safety in accordance with AISI S-100.
   5. ASTM E2140 - Manufacturers test data, signed and sealed by a registered professional engineer, on a test specimen with no end lap, indicating that no water leakage was observed during the testing period of 6 hours with a 6" water head on the specimen.

G. Qualification Statements: For Manufacturer and Installer.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Manual indicating requirements and recommendations, to maintain the roof system, in good working condition.

B. Warranty Documentation: Submit final warranties required in this section.

1.6 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer Qualifications: Manufacturer shall have a minimum of ten years experience in the manufacturing of metal roof systems similar to those required for this project. Manufacturer must have a current installer training program.
   2. Installer Qualifications: Installer ("roofer") to perform the work of this section, shall have no fewer than 5 years of successful experience with the installation of metal roof systems similar to those required for this project. The installer shall be qualified and certified by the roof panel manufacturer for installation of manufacturer-warranted systems prior to bid date.

B. Field Measurements: Prior to fabrication of panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units, where final dimensions cannot be established prior to fabrication.

C. Mock-Ups: Install a 30-foot-wide, quality control area of metal roofing, for review by the Consultant. The Consultant shall approve the quality of installation for the roof, prior to installing additional metal panels.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements: Deliver panels to jobsite properly packaged to provide protection against transportation damage. Panels too long to ship shall be site formed onto the roof by manufacturer's factory personnel using manufacturer's factory roll forming equipment.

B. Storage and Handling Requirements:
   1. Exercise care in unloading, storing and erecting panels to prevent bending, warping, twisting, and surface damage.
   2. Store all material and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation to panels to prevent condensation build-up between each panel.
   3. Remove from site and replace panels which are damaged or become water-stained during storage and handling.

1.8 WARRANTIES

A. Manufacturer Warranties:
   1. Panel Material: Furnish manufacturers 25-year warranty covering the panel against rupture, structural failure, or perforation.
   2. Panel Coating: Furnish manufacturer's 40-year warranty panel coating warranty covering cracking, checking, and peeling, and 30-year warranty covering fade and chalk.
   3. Metal Roof Weathertightness Warranty:
      a) Manufacturer's Joint Weathertightness Warranty
         (1) Warranty term: 20 years commencing on date of substantial completion.
         (2) Total manufacturer's liability: NRL (No Repair Limit).
         (3) Warranty must cover: Pipe and Curb Penetrations
            (a) Pipes must be centered in pan or a pipe curb must be used. Pipe must be flashed with an EPDM dektite.
            (b) Curbs must be all welded aluminum or stainless steel.

B. Installer Warranty: Installer to provide warranty agreeing to repair or replace metal roof panels, trim, or accessories that fails due to poor workmanship or faulty installation.
   1. Warranty term: 2 years commencing on date of substantial completion.

PART 2 – PRODUCTS

2.1 ROOF PANEL SYSTEM

A. Basis of Design: 238T by McElroy Metal, Inc. Bossier City, LA, or approved substitute.

B. Substitution Limitations
   1. Requests for approval must be submitted in writing at least ten (10) days prior to bid date and are accompanied by all related test reports and design calculations listed in section 1.4 and Design and Performance criteria Section 2.2.
   2. Substitute manufactures will be approved by written addendum to all bidders. Voluntary alternates will not be considered. Substitutions will not be permitted after the bid date of this project.
   3. Roof panels proposed for substitution shall fully comply with specified requirements in appearance, assembly, and performance.

C. Product Options
1. Factory-formed panel, width of 18 inches. Panels shall be symmetrical in design and shall be mechanically seamed with a field operated electric seaming machine approved by the manufacturer.
2. Minimum seam height 2 3/8 inches. Integral seam, double lock and snap together type panels are not acceptable
3. Seam cap matching panel finish with two rows of integral factory hot applied sealant. Sealant should not come in contact with clip, and clip should not require sealant to maintain a weathertight condition.
4. Galvalume coated sheet steel, Type AZ-50, Grade 50 as described in ASTM A792; 24 gauge.
5. Finish: Two coat coil applied, baked-on full-strength (70% resin, PVF2) fluorocarbon coating consisting of a nominal 0.25 mil dry film thickness primer, and a nominal dry film thickness of 0.7 - 0.8 mil color coat for a total 0.9 to 1.1 mil total system dry film thickness. Finish to be selected from manufacturer's standard color selection. The back side of the material should be 0.25 mil primer and 0.25 mil polyester wash coat.
6. Roof panel system must allow individual roof panel removal and replacement from any point on the roof without damage to adjacent roof panel(s).
7. Roof panel system must be approved by manufacturer to be installed on slopes as low as 1/4:12.
8. Panels must be furnished and installed in continuous lengths from ridge to eave with no overlaps. Panels too long to ship will be manufactured on site using manufacturer's employees and equipment.
9. Panel surface characteristics to be Striated.
10. Manufacturer weathertightness warranty meeting requirements of this Section.

2.2 PERFORMANCE/DESIGN CRITERIA

A. Thermal Movement: Metal Roofing system, including flashing, shall accommodate unlimited thermal movement without buckling or excess stress on the structure.

B. Roof panel and trim attachments will be designed to satisfy the requirements of the roof design (shown in shop drawings).

C. Maximum wind uplift capacity of roof system shall be determined using ASTM E 1592 test results, with an appropriate Factor of Safety in accordance with AISI S-100.

D. Panel system shall be designed in accordance with the local building code and ASCE7 for project location with respect to appropriate Exposure category, Importance Factor and Factor of Safety in accordance with AISI S-100.

E. Tested and listed by Underwriters Laboratories to comply with UL 580 for wind uplift Class 90 rating.

2.3 ACCESSORIES

A. Panel Clip Screw - screw required in wind uplift rating requirements and design specification for application, with corrosion-resistant coating, in length necessary to penetrate substrate minimum 3/4 inch., as supplied by roof panel manufacturer.
B. Roof Panel Clip:

1. Intermittent Clip: 16 gauge galvanized steel, one-piece, 1 ¾" offset, designed to allow roof panel thermal movement and not contact roof panel cap, as supplied by roof panel manufacturer, meeting wind uplift requirements and design criteria of this section. Clip designed to sit in between ribs of existing R panel roof, attach to the purlins below and hold the new roof system above the ribs of the existing R panel.
2. Multi-Span Clip: as provided by roof panel manufacturer for full assembly warranted systems.

C. Trim and flashing will be of the same gauge and finish unless approved otherwise by the metal roof system manufacturer.
1. Ridge closures, consisting of metal channel surrounding factory precut closed cell foam, will not be secured through the field of the panel.
2. Trim will be installed specifically as displayed in the manufacturer provided shop drawings. Proposed changes must be approved in writing by the metal roof system manufacturer.

D. Concealed supports, angles, plates, accessories and brackets: gauge and finish as recommended, and furnished by manufacturer.

E. Accessory Screw: Size and screw type as provided by panel manufacturer for each use, with prefinished hex washer head in color to match panels where exposed to view.

F. Rivets: full stainless steel, including mandrel, in size to match application.

G. Field Sealant:
1. Exposed Sealant: Color coordinated urethane or polymer sealant as supplied by panel manufacturer.
2. Non-exposed Sealant: Non-curing, non-skinning, butyl tape or tube sealant as supplied by manufacturer.

H. Sealant Tape: non-drying, 100 percent solids, high grade butyl tape, as supplied by panel manufacturer, in sizes to match application.

I. Pipe Penetration Flashings: 20 year warranted flexible boot type, with stainless steel compression ring. Use silicone type at hot pipes.

J. Metal Roof Curbs: 0.063 minimum thickness welded aluminum, or 18 gauge minimum welded stainless steel, factory-insulated, with integral cricket, and designed to fit roof panel module, sized to meet application.

K. Insulation. 1-pound density Expanded Polystyrene board, 23.3" wide by 1.5" thick by 144" long, Notched out on the bottom to fit over the ribs of existing R panel.

PART 3 – EXECUTION

3.1 INSTALLERS

A. Must be certified and qualified by Manufacturer prior to bid date.

3.2 EXAMINATION

A. Verification of Conditions
   1. Ensure surfaces are ready for panel application.
   2. Inspect and ensure surfaces are free from objectionable warp, wave, and buckle before proceeding with installation of pre-formed metal roofing.
   3. Ensure substrate is ready to receive metal roofing. Report items for correction and do not proceed with metal roof panel system installation until resolved.

3.3 PREPARATION

A. Install substrate boards, hat channels, purlins, or furring channels in accordance with manufacturer's recommendations.

B. Coordinate Work, with installation of other associated Work, to ensure quality application.

C. Coordinate Work with installation of associated metal flashings and building walls.

D. Coordinate Work to minimize foot traffic and construction activity on installed finished surfaces.

E. Coordinate location of pipe penetrations to allow centering of pipe in panel.

F. Coordinate location of roof curbs, to allow proper integration with roof panel seams.

3.4 INSTALLATION

A. Comply with and install roofing and flashings in accordance with all details shown on manufacturer's approved shop drawings and manufacturer's product data, instructions, and installation manuals, within specified erection tolerances.

B. Install field panels in continuous lengths, without endlaps

C. Do not install panels damaged by shipment or handling.

D. Install intermittent clips with bearing plates, if required, and continuous clips, if required, according to the engineered design pattern in the field, perimeter, and corner areas of the roof.

E. Fix panels at location depicted on reviewed shop drawing(s).

F. Fold up pan of panel at ridge, hip and headwalls. Commonly referred to as breadpanning.

G. Allow for required panel clearance at penetrations for thermal movement.

H. Install concealed supports, angles and brackets as furnished by manufacturer to form complete assemblies.

I. Remove roof panel and flashing protective film prior to extended exposure to sunlight, heat, and other weather elements.

J. Field-apply sealant tape and gun-grade sealant according to reviewed shop drawings and manufacturer's requirements for airtight, watertight installation.

K. Ensure sealant beads and tapes are applied prior to sheet metal installation to achieve a concealed bead. Neatly trim exposed portions of sealant without damaging roof panel or flashing finish.

L. Align pipe penetrations to occur at center of roof panel. Report and have corrected improperly-placed penetrations before proceeding with panel installation. Remove and replace roof panels which have improperly-placed penetration flashings.

M. Align roof curbs to fit roof panel module and overlap standing seam(s). Allow for proper drainage on both sides of curb.

N. Install sheet metal flashings according to manufacturer's recommendations, reviewed shop drawings and in accordance with provision of Section 07 62 00 Sheet Metal and Miscellaneous Accessories

3.5 CLEANING

A. Clean exposed surfaces of work promptly after completion of installation.

B. Clean mud, dirt, and construction-related debris from panels before panels are scratched or marred.

3.6 PROTECTION

A. Protect Work as required to ensure roofing will be without damage at time of final completion.

B. Do not allow excessive foot traffic over finished surfaces.

C. Do not track mud, dirt, or construction-related debris onto panel surfaces.

D. Replace damaged Work before final completion.

END OF SECTION

2020 MULTIPLE ROOF REPLACEMENTS

FOR

FORT BEND COUNTY FACILITIES MANAGEMENT

FOR THE

FORT BEND COUNTY

PROJECT NUMBER: B20-088

00 01 10
TABLE OF CONTENTS
LIST OF SPECIFICATIONS DIVISIONS AND SECTIONS

SECTION 01 45 16
CONTRACTOR'S QUALITY CONTROL

PART 1 - GENERAL

1.01 GENERAL

A. The Contractor is responsible for quality control and shall establish and maintain an effective quality control in compliance with the General and Special Conditions. The quality control system shall consist of plans, procedures, and organization necessary to product an end product, which complies with the Contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence.

1.02 QUALITY CONTROL PLAN/PROGRAM

A. General: The Contractor shall furnish for review by the Owner at The Preconstruction meeting the Contractor Quality Control (QC) Plan proposed to implement the requirements of the General and Special Conditions. The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Owner will consider an interim plan for the first thirty (30) days of operation. Construction will be permitted to begin only after acceptance of the QC Plan or acceptance of an interim plan applicable to the particular of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a QC Plan or another interim plan containing the additional features of work to be started.

B. Content of the QC Plan: The QC Plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site, including work by subcontractors, fabricators, suppliers and purchasing agent:

1. A description of the quality control organization, including a chart showing lines of authority and acknowledgement that the QC Manager shall implement the three-phase control system for all aspects of the work specified.
2. The name qualifications (in resume format), duties, responsibilities, and authorities of the person assigned the QC Manager.
3. A copy of the letter to the QC manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the QC Manager including authority to stop work which is not in compliance with the contract. A Copy of this letter will also be furnished to the Owner.
4. Procedures for scheduling, reviewing, approving and managing submittals, including those of subcontractors, off-site fabricators, suppliers and purchasing agents. These procedures shall be in accordance with the General Conditions.
5. Control, verification and acceptance of testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test.
6. Procedures for tracking preparatory, initial and follow-up control phases and control, verification and acceptance tests including documentation.

7. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.
8. Reporting procedures, including proposed reporting formats.
9. A list of the definable features or units of work. A definable feature or unit of work is a portion of the Work, which is separate and distinct from other portions of the Work and has separate control requirements. Although each section of the Specifications may generally be considered as a definable feature or unit of work, the organization of the Specifications shall not determine the extent or scope of a definable feature or unit of work. This list will be mutually agreed upon by the Owner, Engineer and Contractor during the coordination meeting.

C. Acceptance of Plan: Acceptance of the Contractor's plan or interim plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Owner reserves the right to require the Contractor to make changes in his QC Plan and operations including replacement of personnel, as necessary, to obtain the quality specified.

D. Notification of Changes: After acceptance of the QC plan, the Contractor shall notify the Owner in writing a minimum of seven (7) calendar days prior to any proposed change in the QC Plan or QC Personnel. Proposed changes are subject to acceptance by the Owner.

1.03 COORDINATION MEETING

A. After the Preconstruction Conference, before start of construction, and prior to acceptance by the Owner of the Quality Control Plan, a meeting shall be held to discuss the Contractor's quality control system. Attending this meeting shall be the Contractor's Project Manger, Contractor's General Superintendent, the Owner' Quality Assurance Inspector, Fort Bend County Project Administrator and site staff, the A/E Site Representative, the Contractor's Quality Control Material Testing Lab, and the Owner' Quality Assurance Material Testing Lab. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the QC operations, control activities, testing, administration of the system for both on-site and off-site work, and the interrelationship of Contractor's Management and Quality Control with the Owner' Quality Assurance. Minutes of the meeting shall be prepared by the Owner and signed by both the Contractor and the Owner. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the QC system or procedures, which may require corrective action by the Contractor.

1.04 QUALITY CONTROL ORGANIZATION

A. Quality Control (QC) Manager:
   1. The Contractor shall identify an individual within his organization at the site of the work who shall be responsible for overall management of QC and have the authority to act in all QC matters for the Contractor. This QC Manager shall be on the site at all times during construction and will be employed by the Contractor, except as noted in the following. An alternate for the QC System Manager will be identified in the plan to serve in the event of the system manager's absence. Period of absence may not exceed two (2) weeks at any one time, and not more than twenty (20) work days during a calendar year. The requirements for the alternate will be the same as for the designated QC Manager.
   2. The Quality Control Manager shall not be removed without the Owner's written consent.

B. QC Organizational Staffing:
   1. The Contractor shall provide and maintain a QC Manager who shall be at the site of work at all times during progress, with complete authority to take any action necessary to ensure compliance with the contract.
   2. Organizational Changes: The Contractor shall obtain Owner acceptance before replacing the QC Manager. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement. The Owner reserves the right to have replaced, of the Quality Manager who is in the opinion of the Owner not accomplishing his assigned duties.

C. QC Staff Qualifications: Following are the minimum requirements for the QC Manager. These minimum requirements will not necessarily assure an adequate staff to meet the QC requirements at all times during construction. When necessary for a proper QC organization, the Contractor shall add additional staff at no cost to the Owner. This listing of minimum staff in no way relieves the Contractor of meeting the basic requirements of quality construction in accordance with contract requirements. All QC staff members shall be subject to acceptance by the Owner.
   1. QC Manager: An experienced construction person with a minimum of five (5) years experience in related work and a minimum of five (5) years verifiable experience as a construction contractor quality control representative.

1.05 QUALITY CONTROL PROCEDURES

A. General: Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the Contract. The Quality Control shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and shall be coordinated to the proposed construction sequence. The Quality Controls shall include three-point inspection plan as described in 5.3.5.3 of the Special Conditions. The Quality Control shall be conducted by the QC manager for all definable features of work.

B. Thee (3) Point Inspection Plan: The Quality Control Manger with the Contractor's appropriate staff shall utilize the Three Point Inspection Plan as the basis of the following Quality Control procedures to assure conformance of the work performed by the Contractor to the requirements of the Contract Documents and to the approved Submittals.

C. Quality Control Procedures: In addition to the basic Three-Part Inspection Plan requirements, the QC Manager shall conduct and implement the following Quality Control procedures for each definable feature of work:

1. Preparatory Coordination: Prior to the start of work under each separate definable segment of work, or prior to the start of work where a change in a construction operation is contemplated by the Contractor, a coordination meeting will be held between the Contractor's Superintendent, the Quality Control Manager, Contractor's Quality Control Material Testing Lab-if testing is required in the definable segment of work, and appropriate representatives of the Owners. Supervisory and Quality Control representatives of all applicable subcontractors will also attend. The purpose of the meeting is to ensure there are no misunderstandings regarding the quality as well as the technical requirements of the Contract. The Contractor's and applicable subcontractor's Quality Control representatives will be on-site at all times during the work and shall have the authority to affect the resolution of Quality problems including stopping the work. The following items will be reviewed at the meeting as a minimum:
   a) Contract requirements;
   b) Shop Drawings and Submittals;
   c) Contractor's Quality Control Program requirements;
   d) Adequacy of previous operations;
   e) Availability of required materials and equipment;
   f) Contractor's Quality Control Inspections and tests;
   g) FORT BEND COUNTY Quality Assurance inspections and tests;
   h) Familiarity and proficiency of Contractor's and Subcontractor's work force to perform the operation to required workmanship standards; and
   i) Any other preparatory steps dependent upon the particular operation.

   The FORT BEND COUNTY Project Administrator shall be notified a minimum of seventy-two (72) hours prior to the beginning of any preparatory coordination meeting. The Contractor's Quality Control Manager will chair the meeting. The results of the preparatory coordination meeting shall be documented by separate minutes prepared by the Quality Control Manager and Attached to the Daily Quality Control Summary Report.
2. Initial Inspection: Upon completion of a representative sample of a given feature of the Work, and prior to the start of a new or changed operation, appropriate Owner's Representative(s) will meet with the Contractor's Superintendent, Quality Control Manager and applicable Subcontractor's Superintendent and their Quality Control Representatives, and Contractor's Quality Control Material Testing Lab-if testing is required in the definable segment of work. The responsibility for scheduling and providing these samples in a timely manner so that the work is not delayed or hindered lies solely with the Contractor. The following items will be checked at this meeting as a minimum;
   a) Review minutes of preparatory meeting.
   b) Conformance to Contract Drawings, Specifications and the accepted Shop Drawings or Submittal;

c) Adequacy of materials and articles utilized;
d) Adequacy and results of inspection and testing methods;
e) Adequacy of safety and environmental precautions.

Once approved, the representative sample will become the physical baseline by which ongoing work is compared for quality and acceptability. To the maximum practical extent, approved representative samples of work elements shall remain visible until all work in the appropriate category is complete. During this inspection all differences will be resolved. The initial phase should be repeated for each new crew to work on-site or any time acceptable specified quality standards are not being met.

The FORT BEND COUNTY Project Administrator shall be notified a minimum of seventy-two (72) hours prior to the beginning of any initial inspection. The Contractor's Quality Control Manger will chair the initial inspection. The results of the initial inspection shall be documented by separate minutes prepared by the Quality Control Manager and attached to the daily quality control summary report.

3. Follow-up Phase: Daily checks shall be performed to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. The checks shall be made a matter of record in the QC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features or work, which may be affected by the deficient work. The Contractor shall not build upon or conceal non-conforming work.
4. Additional Preparatory and Initial Phases: Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the Owner if the quality of ongoing work is unacceptable; or if there are changes in the applicable QC staff or in the on-site production supervision or work crew; of if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.
5. Pre-Final Acceptance Inspection: When the work is completed, the Contractor shall make a written required for Pre-Final Inspection in accordance with the General Conditions, giving the Owner at least seventy-two (72) hours advance notice. The Project Administrator will schedule the Pre-Final Acceptance Inspection and will prepare a list of deficient or incomplete items (Punch List) discovered during the inspection. The Punch List will be transmitted to the Contractor for correction of the deficient or incomplete items. Following correction of the deficient or incomplete items and notification by the Contractor in accordance with the General Conditions, the Project Administrator and the Engineer will conduct the Final Acceptance inspection.
6. Punch List: During Pre-Final or Final Acceptance inspections, Work that is found to be incomplete, needing repair or in Nonconformance with the contract requirements such as loose bolts, damage, unsatisfactory workmanship, etc., will be identified on a Punch List. The Punch List will be distributed to the Contractor, the Engineer and the Inspector Team, by the Project Administrator in accordance with the General Conditions.
7. Final Acceptance Inspection: After the Contractor has completed all items on the Punch List (generated from the Pre-Final Acceptance Inspection) he shall request a Final Acceptance Inspection on a definite date. Seventy-two (72) hours advance notice shall be given to the Owner. Upon verification by the Engineer that the work is ready for Final Inspection and Acceptance, the Owner will within ten (10) calendar days make Final Inspection.

1.06 DEFICIENT AND NON-CONFORMING WORK

A. General:
1. Workmanship or materials which are found to be not in conformance with the Contract Documents shall be identified with a Deficiency issued by the Contractor's Quality Control Manager.
2. FORT BEND COUNTY reserves the right to maintain a staff of inspectors for random sampling of the materials and the work for conformance to Contract Documents. This does not relieve the Contractor in any way from his responsibility of Quality Control.
3. FORT BEND COUNTY will utilize the services of the Qualify Assurance Material Testing Laboratory to perform tests of Materials as necessary to verify any testing performed by the Contractor's Material Testing Lab.
4. The Quality Control Manager shall request the Contractor to take remedial actions via a Deficiency where indicated by nonconforming work or materials found by test results.
5. All deficiencies instituted by Contractor must include the proposed corrective action to be taken, and submitted to the Engineer and FORT BEND COUNTY for approval.
6. Upon satisfactory completion of the Remedial Action, the results shall be documented by the Contractor's Quality Control Material Testing Laboratory, with a copy of the results to the FORT BEND COUNTY. If Material Testing Laboratory Test Reports reveal nonconforming work or materials in which the work effort has been completed and no longer correctable, the Quality Control Manager shall direct the Contractor to remove the work.

B. Deficiency Notice:
1. Ongoing work which is Deficient shall be noted by the Contractor's Quality Control Manager via a deficiency notice. A log shall be kept by the Contractor on all such items and notice on all such items shall be given to the appropriate parties by the Contractor's Quality Control manager. A copy of such notices shall be made on a daily basis to the FORT BEND COUNTY Project Administrator attached to the Quality Control Summary Report, and an updated copy of the Log shall be forwarded to the FORT BEND COUNTY Project Administrator on a weekly basis, by the Contractor's Quality Control Manager. FORT BEND COUNTY reserves the right to advise the Contractor's Quality Control Manager of work that is Deficient.
2. Deficient work is when the affected element of work is in-progress and discrepancies can be rectified as the work proceeds.

C. Remedial Action Request: FORT BEND COUNTY reserves the right to issue a remedial action request on deficient work that has not been corrected on an ongoing daily basis, recurring Deficient work or materials, or deficient work that is danger of being covered up. The Remedial Action Request will be copied to the Contractor's Quality Control Manager on a same day basis and shall require a written response by the Contractor's Quality Control Manager within twenty-four (24) hours of issuance to the FORT BEND COUNTY Project Administrator. Upon approval of the Contractor's proposed corrective action, the Contractor shall have fifteen (15) calendar days to successfully complete his remedial work. If after fifteen (15) calendar days, the Deficient Work is not resolved, the work identified shall become in nonconformance and a notice of nonconformance will be issued. When issued, a notice of nonconformance will preclude payment for the elements noted and will remain in effect until corrective actions have been submitted, approved and performed. A Remedial Action Request Log will be kept by the FORT BEND COUNTY on-site staff and a copy of this Log will be forwarded to the Contractor's Quality Control Manager on a weekly basis.

D. Notice of Nonconformance: A Notice of Nonconformance will be issued to the Contractor by the FORT BEND COUNTY Project Administrator whenever there are violations of the terms of the Contract, including materials received and/or completed items of the Work found to be in nonconformance with contract requirements. Work not in conformance with the Contract Documents can be identified as work or materials that cannot be corrected and must be replaced, work that in order to correct it must have a deviation from Contract Documents approved, or work in which an item must be substituted in lieu of payment for elements noted and will remain in effect until corrective actions have been submitted, approved and performed. The Notice of Nonconformance form will fully describe the nature and extent of nonconforming elements and will include a space for the Contractor's Corrective Action Proposal, the Engineer review of the Contractor's Proposal, FORT BEND COUNTY reinspection and/or verification of approved corrective rework and a space for the FORT BEND COUNTY Project Administrators disposition of the nonconformance matter.

E. Corrective Action: Correction of Deficient or Nonconforming Work will be monitored by the FORT BEND COUNTY. FORT BEND COUNTY will verify that the Deficient or Nonconforming work has been corrected, corrective action has been taken to prevent recurrence, and will record when the correction was completed. Significant conditions adverse to quality will be reviewed by the FORT BEND COUNTY to determine the cause and to review the Contractor's recommended corrective action that will preclude recurrence. Follow-up action shall be taken to verify implementation of the corrective action. The corrective action will be documented by FORT BEND COUNTY.

1.07 QUALITY CONTROL OF PRODUCT DELIVERY

A. Inspection of Products and Equipment to be incorporated into the work.
   1. Products and equipment delivered to the project site shall be subject to inspection by the Quality Control Manager for conformance with the Contract Documents and Submittals, prior to incorporation into the Work. FORT BEND COUNTY inspectors may monitor the Contractor's inspection procedures.

2. All products and equipment furnished by FORT BEND COUNTY and delivered to the project site shall be inspected by a FORT BEND COUNTY Inspector and the Quality Control Manager for shipping damage, and for identification and quantity, prior to incorporation into the Work.
3. Items which are found to be in nonconformance with Contract requirements shall be identified, issued a Deficiency by the Quality Control Manager and segregated form accepted products and equipment. These items shall not be incorporated into the Work until corrective action acceptable to FORT BEND COUNTY and the Engineer has been completed.
4. Special requirements for storage, handling and tracking of hazardous material shall be monitored in strict accordance with Materials Safety Data Sheet requirements.
5. Items which are determined to have been improperly shipped, stored, or handled shall be deemed deficient and shall not be incorporated into the Work until the manufacturer has inspected the item in question and determined the repair work or corrective actions necessary to validate the product warranty or restore the product to like new condition, subject to approval of the Owner.

1.08 DOCUMENTATION

A. The Contractor shall maintain current records of quality control operations, activities, and tests performed, including the work of subcontractors and suppliers. These records shall be on the sample forms included herein and shall include factual evidence that required quality control activities and specified tests have been performed, including but not limited to the following:
   1. Contractor/subcontractor and their area of responsibility.
   2. Operating plan/equipment with hours worked, idle or down for repair.
   3. Work performed today, giving location, description, and by whom.
   4. Test and/or control activities performed with results and reference to Contract requirements. The control phase shall be identified (Preparatory, Initial and Follow-up). List deficiencies noted along with corrective action.
   5. Material received with statement as to its acceptability and storage.
   6. Identify submittals reviewed, with contract reference, by whom, and action taken.
   7. Off-site surveillance activities, including actions taken.
   8. Job safety evaluations stating what was checked, results and instructions or corrective actions.
   9. Record instructions given/received in the field.

B. These records shall indicate a description of trades working on the project; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original of these records in report form shall be furnished to the Owner daily within twenty-four (24) hours after the date(s) covered by the report, including reports for days on which no work is performed. All calendar days shall be accounted for throughout the life of the Contract. Reports shall be signed and dated by the QC Manager. The report from the QC Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

1.09 QUALITY CONTROL OF REGULATORY REQUIREMENTS

A. Inspection of Clean Water Act Section 402(p): Provide Inspections required by Section 402(p) as follows:
   1. Inspection shall as a minimum be performed once every seven (7) days or within twenty-four (24) hours of rainfall of one-half inch (1/2") or more. If the area in which the construction activity is taking place is an arid or semi-arid zone, (10 to 20 inches annual rainfall average or less), the requirement for reporting is still within twenty-four (24) hours of a one-half inch (1/2") rainfall, but only once every thirty (30) days if no such rainfall occurs.
   2. Inspections shall observe:
      a) Disturbed areas, areas used for storage of materials exposed to precipitation, structural control methods and areas where vehicles enter and exit site.
   3. Disturbed area or storage areas shall be inspected for evidence of or the potential for pollutants entering the runoff from the site. Examine erosion and sediment controls to ensure they are performing correctly. If a location where runoff is discharged into U.S. waters (creeks, rivers, etc.) is assessable, it shall be inspected for significant impacts. Entrances and exits shall be inspected for off-site tracking. Non-stormwater discharges such as water discharges are created as a result of construction activities and its associated activities; (i.e. truck washing, etc.) shall be inspected.
   4. Inspections may result in alterations of the original Pollution Prevention Plan. Documentation of these recommended changes shall be included in the inspection reports.

B. Documentation of Inspections:
   1. An inspection report shall include as a minimum: scope of inspection, name and qualifications of inspector, dated of inspection, major observations, actions taken and actions recommended.
   2. The contractor shall maintain current records of inspection.

C. The original of these records shall be submitted to the Owner within twenty-four (24) hours after the date(s) covered by the report. Reports shall be signed by the QC manager.

END OF SECTION 01 45 16

SECTION 04 05 23
THROUGH-WALL AND WALL SUBSTRATE FLASHING SYSTEM

PART 1 - GENERAL

1.01 GENERAL

A. Contractor shall review American Concrete Institute 530.1 mandatory specification checklist for additional requirements necessary for specific project.

B. Flashing system shall be provided and installed by a qualified waterproofing contractor.

C. Contractor shall provide a photo manifest of through-wall installation, including all starts, stops, and transitions in plane.

D. It is the intent of this specification that the new work will provide a watertight facility (restricted to the location where work is to be performed). The attached specifications describe the minimum acceptable standards of construction and finish.

E. Contractor shall water test all through-wall flashings once veneer is twelve inches (12") above installed flashing. Coordinate test with Architect and Consultant.

F. Manufacturer of cloak flashing shall have a representative inspect the installed work a minimum of two times per week. The representative shall not be the installer.

G. All vertical flashing to be installed full height of the vertical surface.

1.02 QUALITY ASSURANCE

A. At a scheduled pre-construction meeting with all trades, contractor shall review flashing for the project and how the flashing shall be sequenced with the following: below grade waterproofing, air and vapor system, window installation, sealant installation, relief angles and roofing.

1.03 SUBMITTALS

A. Shop Drawings: Contractor shall provide from the manufacturer a review of the flashing design for the project and location of preformed shapes on reduced floor plan.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

B. Manufacturer's packaging and/or roll plastic is not acceptable for exterior storage. Tarpaulin with grommets shall be minimum acceptable for exterior coverings. All materials stored as above shall be a minimum of four inches (4") off the substrate, and the tarpaulin tied off with rope.

C. Deliver materials in sufficient quantity to allow continuity of work.

D. Handle and store material in such a manner as to avoid damage.

E. Protect materials against damage by construction traffic.

F. Storage: All materials should be stored under cover to avoid site damage. During cool weather construction, store materials inside at 50° F or higher.

G. The proper storage of materials is the sole responsibility of the contractor and damaged materials shall be discarded, removed from the project site, and replaced prior to application.

1.05 SITE CONDITIONS

A. Job Condition Requirements: Coordinate the work of the contractor with the work to be performed by the Owner's personnel, to ensure proper sequencing of the entire work. The contractor shall follow local, state, and federal regulations, safety standards, and codes. When a conflict exists, use the stricter document.

B. Protection of Work and Property:
1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations shall be fulfilled by the contractor as part of his proposal.
2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.

C. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds shall be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

D. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

E. Cleaning and Disposal of Materials:
1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean.
2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. At completion, all work areas shall be left clean and all contractor's equipment and materials removed from the site.
3. Debris shall be deposited at an approved disposal site.

1.06 WARRANTY

A. Flashing Manufacturer: Project shall be installed in such a manner that the flashing material manufacturer will furnish a written ten (10) year materials warranty from the date of substantial completion of the completed project.

B. If the Multi-ply PVC roof system or Asphalt Modified Bitumen Roof system is being provided and installed on the same facility as the flashing is being provided and installed, the warranty period for this flashing system shall be included in the roof warranty for the same twenty (20) year period.

PART 2 – PRODUCTS

2.01 BUILT-IN FLASHING MEMBRANE (ELVALOY® SHEET)

A. The built-in flashing membrane shall be 40 mil flexible sheet material, consisting of a blend of elastomeric and polymers, incorporating DuPont™ Elvaloy®. The membrane shall be reinforced with synthetic fibers, calendered into sheet form, rolled and cut to width.

B. Cloaks shall be pre-formed, three dimensional flexible units used for detail corners, level changes, stop ends, and special applications.

Physical Properties		
Elongation	175%	ASTM D412
Tensile Strength	650 psi	ASTM D412
Tear Strength	280 psi	ASTM D624
Low Temperature Flexibility	-25° F Pass	ASTM D146
Water Absorption	Less than 0.1%	ASTM D471

C. Cloak color shall be as selected by Architect and/or shall match mortar color. Reference manufacturer's list of colors for selection.

2.02 RELATED MATERIALS FOR BUILT-IN FLASHING MEMBRANE

A. Flashing Membrane Adhesive: Flashing adhesive exceeds the requirements of TTS00230C Type II, Class B, ASTM C 92094. The product shall be terra cotta (dull red) in color.

Physical Properties		
Hardness Shore A	24 ± 3	ASTM C 661
Shear Strength	75 psi	ASTM D 1002
Tack Free Time	25 minutes	ASTM C 679
Slump (sag)	Zero slump	ASTM C 697
Shrinkage	No measurable shrinkage after 14 days	
Low Temperature Flexibility	-20° F pass 1/4 inch mandrel	
Service Temperature	-40° F to 200° F continuous service	
Shelf Life	One year	

2.03 SURFACE-ADHERED WITH DRIP FLASHING MEMBRANE (ELVALOY® SHEET)

A. Surface-adhered with drip membrane shall be a composite 40 mil membrane consisting of 25 mils of elastomeric/thermal plastic membrane incorporating DuPont™ Elvaloy® and 15 mils of SBS asphaltic adhesive. The membrane shall be reinforced with synthetic fibers, calendered into sheet form, rolled and cut to standard widths.

B. Standard Sheet Dimensions:

Thickness	40 mil
Roll length	75 ft
Roll widths	12, 18, 24, 36 in

C. Cloaks shall be pre-formed, three dimensional flexible units used for detail corners, level changes, stop ends, and special applications.

Physical Properties		
Elongation	225%	ASTM D412
Tensile Strength	875 psi	ASTM D412
Tear Strength	270 psi	ASTM D624
Low Temperature Flexibility	-25° F Pass	ASTM D146
Water Absorption	Less than 0.1%	ASTM D471

2.04 RELATED MATERIALS FOR SURFACE ADHERED FLASHING MEMBRANE

A. Asphalt Primer: Shall be a two-sided, self-adhering tape used to seal the top of cloaks against the back-up wythe. Adhesive may be used as an alternative.

B. Substrate Primer:

Physical Properties		
Solids by Weight	68%	
Viscosity	758 cps	
Weight per Gallon	9.3 lbs.	
Elongation	>656% no Breakage, Exceeded Travel of Instron	ASTM D 2370
Tensile Strength	85.1 psi	ASTM D 2370
pH	10	
Hardness Shore A	59	
Peel Strength	Aluminum No Fail at 4.60 pli Concrete No Fail at 3.86 pli	

C. Mastic: Shall be used at all laps and joints, and top terminations.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine conditions for compliance with requirements for installation tolerances and other specific conditions.

3.02 GENERAL

A. Laying Masonry Walls: Use an inverted lintel CMU or fully grouted hollow CMU as a base for flashing at sills, floor joints, and other similar conditions.

B. Preparation: All sharp protrusions and mortar droppings must be removed from the substrate, and the surface must be clean and dry.

C. Where brick work occurs above the roof elevation, provide solid protection of the existing roof system until work is complete.

D. Flashing shall be fully supported when crossing the cavity except at sill and coping locations.

E. Flashing shall be fully adhered around all wall penetrations prior to veneer installation.

3.03 INSTALLATION OF THROUGH-WALL FLASHING IN EXISTING WALLS

A. To install continuous flashing in existing walls, remove alternate sections of masonry in two to five feet (2-5') lengths. The flashing shall be installed in these sections and the masonry replaced. Alternately temporary braces may be installed as longer sections of brickwork are removed. The flashing shall then be installed in these sections. The lengths of flashing shall be lapped a minimum of six inches (6") with an end dam at each joint, and be completely sealed to function properly. The opening shall then be filled as described in Brick Replacement. The replaced masonry shall be properly cured (five to seven days) before the intermediate masonry sections or supports are removed.

3.04 BRICK REMOVAL

A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
   1. When removing single bricks, remove material from center of brick and work toward outside edges.

B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

C. Notify Structural Engineer and/or Project Manager of unforeseen detrimental conditions including voids, cracks, bulges, and loose masonry units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Remove in an undamaged condition as many whole bricks as possible.

1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
2. Store brick for reuse, as indicated.
3. Deliver cleaned brick not required for reuse to Owner's Agent, unless otherwise directed.

E. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

3.05 INSTALLATION OF BUILT-IN FLASHING MEMBRANE

A. Flashing membrane and cloaks shall be installed in a bed of fresh mortar and should extend through the outer wythe a minimum of one-fourth inch (1/4") and left exposed. Flashing membrane is UV resistant.

B. Weep holes shall be provided immediately above all flashing at 24-inch centers. A minimum of two weeps shall be installed above any wall opening.

C. All joints in the flashing membrane shall be lapped a minimum of four inches (4") using flashing membrane adhesive.

D. Flashing membrane shall be installed six inches (6") above finished grade level.

E. Cloaks and end dams shall be installed at all window and door heads and sills.

F. Vertical flashing at wall openings shall extend into the wall opening four inches (4"). The door/window frame shall be installed with the flashing extending onto the back of the frame.

G. Cleaning: Flashing membrane shall not be damaged by cavity cleaning after installation. Precautions to be taken during subsequent work are:
1. Use of cavity battens to prevent mortar droppings;
2. Removal of droppings before they harden;
3. Never use implements such as steel rods for cleaning the cavity; and
4. Inspection of cavity flashing for damage as the work proceeds.

3.06 INSTALLATION OF SURFACE-ADHERED FLASHING WITH DRIP MEMBRANE

A. Priming: All flashing substrates shall be primed. Flashing primer shall be applied with a brush, roller or sprayed. Coverage is approximately 400 square feet per U.S. gallon (3.78L). Drying time may vary depending on temperature, humidity, and air movement; drying time should be approximately 45 minutes.

B. Flashing System Installation: Starting at a corner, mount cloak to substrate flashing adhesive. Cut surface adhered membrane into workable sections (8'-10'). Remove the release sheet and adhere the membrane to the inner leaf of construction lapping the membrane onto the cloak four inches (4"). Use firm hand pressure and a steel roller to totally adhere membrane in place. Extend membrane completely through the outer leaf and leave it exposed one-fourth inch (1/4") minimum. The surface-adhered membrane is UV resistant. Apply a bead of flashing mastic to all top termination edges.

C. Termination Bar: The surface-adhered membrane shall be installed using a termination bar for additional attachment to the inner leaf (optional).

D. Weep holes shall be provided immediately above all flashing at 24-inch centers. A minimum of two baffle weeps shall be installed above any wall opening.

E. Flashing membrane shall be installed six inches (6") above finished grade level.

F. Stop end cloaks shall be installed at all windows, door heads, sills, and through-wall starts, stops, steps, etc.

G. Enveloped vertical flashing at wall openings shall extend onto the window unit one inch (1"). The door/window frame shall be installed with the flashing extending onto the back of the frame.

H. Enveloped vertical flashing shall be installed at all abutments of dissimilar exterior wall treatments: inside and outside nineties (90°), etc.

I. Cleaning: Flashing membrane shall not be damaged by cavity cleaning after installation. Precautions to be taken during subsequent work are:
   1. Use of cavity battens to prevent mortar droppings;
   2. Removal of droppings before they harden;
   3. Never use implements such as steel rods for cleaning the cavity; and
   4. Inspection of cavity flashing for damage as the work proceeds.

3.07 FLASHING MEMBRANE ADHESIVE

A. Application:
   1. Flashing adhesive shall be applied to clean, dry and relatively smooth surfaces.
   2. When joint two (2) pieces of flashing membrane, or joining flashing membrane to Cloaks:
      a) Apply two (2) one-fourth inch (1/4") beads of adhesive approximately one-half inch (1/2") and one and one-half inch (1-1/2"), respectively, from the edge of the bottom membrane along the entire width of the bottom membrane. Overlap the top membrane over the bottom membrane two inches (2") and roll lap with steel hand roller, causing excess to extrude the entire length of the overlap.
   3. Do not remove excess adhesive.

B. Safety, Storage and Handling: Keep container tightly closed when not in use. Store at room temperature. Clean up tools and hands with waterless hand cleaner.

3.08 SUBSTRATE PRIMER

A. Surface Preparation: Areas to be primed should be dry.

B. Application: Substrate primer may be applied using a soft roller or brush. It can be removed from masonry with soapy water while wet and a solvent-based cleaner if dry (mineral spirits or citrus cleaner).

C. Coverage: Depending on the condition of the surface, coverage may vary from as little as 150 square feet to 200 square feet per gallon.

D. Caution:
1. Substrate primer should not be applied when temperatures are below 40° F or when rain is imminent.
2. Keep substrate primer from freezing.
3. During hot weather, the product should be stored in a cool shaded area.
4. Do not thin this product.
5. Curing rates will vary depending on the ambient temperature relative humidity, wind speed, sky condition and the proper rate of application. Generally speaking, Substrate primer will dry within 15 to 30 minutes when applied at 70° F or above. At 50° F, on a cloudy day, cure time may be extended to as much as one hour.
6. Check several places on primed area for dryness prior to proceeding with the flashing application.

END OF SECTION 04 05 23

SECTION 06 10 53
MISCELLANEOUS ROUGH CARPENTRY

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section includes the following:
   1. Framing with dimension lumber.
   2. Rooftop equipment bases and support curbs, as required.
   3. Wood blocking, cants, and nailers.

1.02 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

1.03 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.
   3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
   1. Preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Power-driven fasteners.
   4. Powder-actuated fasteners.
   5. Expansion anchors.
   6. Metal framing anchors.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: To qualify for approval, an independent testing agency must demonstrate to Project Manager's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

B. Single-Source Responsibility for Engineered Wood Products: Obtain each type of engineered wood product from one source and by a single manufacturer.

C. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria".
1. Dimension lumber.
2. Miscellaneous lumber.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers (for Wood Sources outside the Scope Requirements for Fire-Treated Plywood): Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Wood-Preservative-Treated Materials:
   a) J. H. Baxter Co.
   b) Chemical Specialties, Inc.
   c) Continental Wood Preservers, Inc.
   d) Hickson Corp.
   e) Hoover Treated Wood Products, Inc.
   f) Osmose Wood Preserving, Inc.
2. Metal Framing Anchors:
   a) Cleveland Steel Specialty Co.
   b) Harlen Metal Products, Inc.
   c) Silver Metal Products, Inc.
   d) Simpson Strong-Tie Company, Inc.
   e) Southeastern Metals Manufacturing Co., Inc.

2.02 LUMBER - GENERAL

A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
   1. NELMA - Northeastern Lumber Manufacturers Association.
   2. NLGA - National Lumber Grades Authority (Canadian).
   3. RIS - Redwood Inspection Service.
   4. SPIB - Southern Pine Inspection Bureau.
   5. WCLIB - West Coast Lumber Inspection Bureau.
   6. WWPA - Western Wood Products Association.

C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
   1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.

D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   1. Provide dressed lumber, S4S, unless otherwise indicated.
   2. Provide dry lumber with 19% maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
   3. Provide dry plywood with 15% maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

2.03 WOOD-PRESERVATIVE-TREATED MATERIALS

A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 for lumber and AWPA C9 for plywood. Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
   1. Do not use chemicals containing chromium or arsenic.
   2. For exposed items indicated to receive stained finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes, and mark end or back of each piece.
   3. Do not use material that is warped or does not comply with requirements for untreated material.

B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19% for lumber and 15% plywood. Treat indicated items and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

C. Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWPA M4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.04 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in AWPA C20 for lumber and AWPA C27 for plywood. Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D 5664 for lumber and ASTM D 5516 for plywood.
   2. Use treatment that does not promote corrosion of metal fasteners.
   3. Use Exterior type for exterior locations and where indicated.
   4. Use Interior Type A High Temperature (HT), unless otherwise indicated.

B. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

2.05 DIMENSION LUMBER

A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.

B. Other Framing Not Listed Above: Provide the following grades and species:
   1. Grade: No. 2.
   2. Species: Spruce-pine-fir south; NELMA.

2.06 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, the following:
   1. Rooftop equipment curbs and support bases
   2. Cant strips
   3. Nailers
   4. Blocking

B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

D. Grade: For dimension lumber sizes, provide Common grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.

E. All wood nailers, structural cants, curbs, and other miscellaneous rough carpentry, shall be lumber as recommended by NRCA, and Underwriters Laboratory guidelines.

2.09 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
   1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.

B. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

C Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
   1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
   2. Published requirements of metal framing anchor manufacturer.
   3. "Recommended Nailing Schedule" of referenced framing standard and with AFPA's "National Design Specifications for Wood Construction."
   4. "Table 2305.2--Fastening Schedule" of the BOCA National Building Code.

F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.

G. Use stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.

H. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

3.02 ROUGH CARPENTRY

A. Nailers shall be installed according to NRCA, Underwriters Laboratory, and IBC guidelines.

B. Wooden nailers shall be installed at gravel stops, drip edges, expansion joints, and on outside perimeter of building.

C. Gravel stop and drip edge nailers shall be the same height as the new insulation being installed where required.

D. Nailers shall be raised if necessary, by anchoring an additional nailer of appropriate height to the existing nailer if the existing nailer is not to be replaced.

E. Expansion joint nailers shall extend upward a minimum of eight inches (8") above finish roof height.

F. Where parapet wall exists, specified vertical wall shimming material shall be installed beginning at roof height up to a minimum of twelve inches (12") above finished roof surface, or as detailed, to provide substrate for horizontal termination of roof to wall flashing system.

G. Any lumber or shimming required for attachment, or to make material flashing flush or

3.03 NAILERS

A. Wooden nailers shall be installed at gravel stops, drip edges, and expansion joints on outside perimeter of building according to NRCA, Underwriters Laboratory and IBC guidelines.

B. All Construction: Nailers shall be the same height as the new Insulation being installed where required. Nailers shall be raised if necessary, by anchoring an additional nailer of appropriate height to the existing nailer if the existing nailer is not to be replaced. Nailers shall be anchored to resist a pull-out force of one hundred seventy-five pounds (175#) per foot. Fasteners shall be no less than two (2) per nailer, and be spaced at three feet (3') on center maximum.

C. Expansion joint nailers shall extend upward a minimum of eight inches (8") above finish roof height.

3.04 STRUCTURAL WOOD CANTS

A. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory, and IBC guidelines.

B. Provide full 45 degree cant strips (no partials) at all intersections of vertical and horizontal surfaces, such as walls, parapet walls, curbs, expansion joints, etc., and as recommended by membrane manufacturer.

C. Cants shall provide a four inch (4") rise above the roof's surface and extend a minimum of four inches (4") horizontally.

D. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory, and IBC guidelines.

E. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.

F. If a wood cant is used where insulation exists, cant shall be toe nailed into treated wood nailer under cant the same height as insulation.

END OF SECTION 06 10 53

SECTION 07 22 16
ROOF BOARD INSULATION

PART 1 – GENERAL

1.01 REFERENCES (INCLUDING LATEST REVISIONS)

A. Comply with governing local, state, and federal regulations, safety standards, and codes.

B. Testing Laboratory Services: Test results shall meet or exceed established standards.

C. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

D. American Society of Testing Materials (ASTM)
1. C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
2. C 209 Methods of Testing Insulating Board (Cellulosic Fiber), Structural and Decorative
3. D 41 Asphalt Primer Used in Roofing and Waterproofing
4. D 312 Asphalt Used in Roofing
5. D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics
6. D 4601 Asphalt Coated Glass Fiber Base Sheet Used in Roofing

E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual

F. American National Standards Institute/Single Ply Roofing Industry (ANSI/SPRI)

G. American Society of Civil Engineers - ASCE 7 Minimum Design Loads for Buildings and Other Structures (for wind uplift criteria)

1.02 QUALITY ASSURANCE

A. Regulatory Requirements
1. Classified by Underwriter's Laboratories (UL) as Class A roof covering.
2. Follow local, state, and federal regulations, safety standards, and codes.

B. Installation
1. Installation shall be in accordance with manufacturer's current published application procedures, NRCA general recommendations, and ASCE 7 wind uplift criteria.
2. Roof system manufacturer's technical specifications shall be considered part of this specification and shall be used as reference for specific application procedures.

C. Contract Documents
1. In the case of an inconsistency between the drawings and specifications or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Project Manager's/Architect's interpretation.

1.03 SUBMITTALS

A. Product Data: Submit Manufacturer's product data sheets for each product.

B. Shop Drawings: Layout of roof plan showing direction of slope, amount of slope, spot elevations indicating thicknesses at high and low points.

C. Certification: Submit roof manufacturer's certification in writing that insulation is acceptable as substrate for application of specified roof system.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store materials in accordance with manufacturer's recommendations.

B. When stored outdoors:
1. Tarp and shield insulation from moisture and ultraviolet rays.
2. Elevate insulation above substrate four-inches minimum.
3. Secure insulation to resist high winds.
4. Distribute insulation stored on roof deck to prevent concentrated loads that would impose excessive stress or stain on deck or structural members. Verify that structure can accommodate additional loading.
5. Wet insulation, or insulation that has been wet but which has dried, may not be used and shall be removed completely and immediately from the job site.
6. Do not double stack bundles of insulation on the roof top.

1.05 SEQUENCING AND SCHEDULING

A. Substrate Acceptance: Roof system manufacturer's representative shall inspect roof deck and associated substrates and provide written acceptance of conditions.

B. Manufacturer's approved roofing contractor shall inspect and approve deck and substrates.

C. Plan roof layout with respect to roof deck slope to prevent rainwater drainage into completed roofing.

D. Do not install more insulation than can be covered with complete roof system in same day.

1.06 PRODUCT CONDITIONS

A. Environmental Requirements:
1. Apply roofing and insulation in dry weather.
2. Do not proceed with roof construction during inclement weather or when precipitation is predicted 40% or more possibility.
3. Do not apply insulation over wet or moist deck or in foggy conditions.
4. Days with wind speeds of 30 mph or greater shall be considered "Bad Weather" days.

B. Emergency Equipment: Maintain on-site equipment and material necessary to apply emergency temporary seals in the event of sudden storms or inclement weather.

C. Costs for emergency roofing shall be borne by Contractor.

PART 2 – PRODUCTS

2.01 INSULATION – FLAT STOCK

A. All insulation shall be approved in writing by the membrane manufacturer as to thickness, type, and manufacturer. All insulation must be approved for the specific application, Underwriters Laboratory approved, and be listed in the FM Global Approval Guide.

B. Polyisocyanurate Roof Insulation: Insulation shall be two layers of rigid polyisocyanurate foam board; meeting Federal Specification No. HH-I-1972/1 or 2 with 20 psi minimum compressive strength and 2.0 pcf minimum density. First layer shall be a minimum thickness of one and one-half inch (1-1/2"). Average R-value over each roof area shall meet or exceed R-25. Board shall be surfaced on two (2) sides with non-asphaltic facer material.

2.02 INSULATION – TAPERED

A. Factory Tapered Polyisocyanurate for Reverse slope: Shall be tapered polyisocyanurate board, with a 20 psi minimum compressive strength and nominal 2.0 pcf density. Insulation shall be of thickness required gain positive slope to drains as shown on drawings with a minimum edge thickness of one and one-half inch (1-1/2"). Insulation shall be surfaced on two (2) sides with a non-asphaltic facer material.

B. Factory Tapered Polyisocyanurate Crickets: Factory cut twenty-four inch by forty-eight inch (24" x 48") polyisocyanurate board cut to one-half inch (1/2") per foot slope used in conjunction with standard thickness of polyisocyanurate board to provide positive slope.

2.03 COVER BOARD

A. Substrate Board: Impact-resistant, nonstructural, specially engineered gypsum and cellulose fiber panels with 95% recycled content; uniform water-resistance throughout core and surface. Board size four feet by four feet (4' x 4'), thickness 1/2"; conforming to ASTM C 1278, meeting FM 4470 Class 1 criteria, classified by Underwriters Laboratories, and listed in the FM Global Approval Guide. Board will meet the following physical properties, Securock® Roof Board, as manufactured by USG Corporation, or approved equal.

Test	Typical Value	Test Method
Fire Resistance	Class A	UL 790
Permeance	≤ 30	ASTM C473
Surface water absorption	≤ 1.6 nominal grams	ASTM C473
Water resistance	Maximum 10% weight percentage gain	
Mold Resistance	Minimum rating of "10"	ASTM D3273

2.04 ASPHALT ROOF PRIMER

A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces, as manufactured by GAF, or approved equal.

Applicable Federal Specification	SS-A-701B
ASTM	D 41
Flash Point	105° F
Viscosity at 80° F (ASTM D 217)	50-60 K.U.
Weight per gallon	7.4 pounds
Drying time (to touch)	Min. 4 hours

2.05 BITUMEN

A. Shall be ASTM D 312 Type IV extra steep asphalt.

B. Contractor shall mix with the hot asphalt an additive that eliminates the asphalt odor, such as descent, as manufactured by ArrMaz Custom Chemicals, or approved equal.

2.06 COLD INSULATION ADHESIVE

A. Shall be a dual component, reaction cure polyurethane adhesive, meeting the following physical properties, OlyBond 500™, as manufactured by OMG, or approved equal.

Density	ASTM D-1622	3.2 lb/cf
Compressive Strength	ASTM D-1621	38 psi @ 6% deflection
Tensile Strength	ASTM D 1623	35 psi
Water Absorption	ASTM D 2842	5.1%
Closed Cell Content	ASTM D 6226	90% min.
R-Value	ASTM C 518	3.8/inch
Weight/Gallon (Liquid Components)	Part 1 Component	10.32 lbs.
	Part 2 Component	8.54 lbs.

2.07 FASTENERS

A. Fasteners and fastening plates and/or termination bars shall be FM Approved and shall be listed in the FM Global Approval Guide, and as recommended by the insulation/fastener manufacturer for the specific application to meet the minimal requirements for wind uplift as required by the local jurisdiction and/or FM Global.

B. Standard Fastener for Masonry Applications: Shall be one-fourth inch by two inches (1/4" x 2"), shank shall be zinc coated steel and pin shall be zinc-coated stainless steel, one-piece unit, flat head. The fastener must meet or exceed GSA Specification No. FFS-325, Group V, Type 2, Class 3 as manufactured by OMG Roofing Products, or approved equal.

C. Standard Fastener for Steel Applications for 18-24-gauge Steel and Wood Substrates: Shall be a #14 fastener with a minimum .220 thread diameter and .12.5 buttress threads and a 30-degree spade point. Fasteners shall be fluorocarbon coated with CR-10 corrosion resistant coating when subjected to 30 Kesternich cycles (DIN 50018) shows less than 15% red rust which surpasses FM Global Approval Standard 4470, as manufactured by OMG Roofing Products, or approved equal. All fasteners shall be used in conjunction with the manufacturers approved round pressure plate. Fasteners, plates, and/or bars shall be FM approved and listed in the FM Global Approval Guide.

D. FM-90 Base Sheet Fastener for Lightweight Insulating Substrates: Shall be a galvanized (G-90) coated steel with split shank, one-piece fastener, with rectangular dual gripping legs 1.7" length and an elastomeric polymer coating to be used with a precision formed galvalume (AZ-55) coated steel with a rib reinforced cap in 2.7" inch diameter plate as manufactured by ESProducts, or approved equal. Fasteners and plates shall be approved by FM Global and listed in the FM Global Approval Guide.

PART 3 – EXECUTION

3.01 PROTECTION OF ROOFING

A. Provide special protection from traffic on yet to be removed roofing.

B. Provide special protection from traffic on completed work.

3.02 EXAMINATION AND PREPARATION

A. Do not install until defects are corrected and deck substrate meets roof system manufacturer's requirements.

B. Do not apply insulation unless asphalt application temperature, EVT of approximately 375° F to 425° F, can be maintained or when water or moisture is present on substrate. Do not heat asphalt above flashing point, or 525° F.

C. Examine substrate and related surfaces, and verify that there are no conditions such as inadequate anchorage, foreign materials, moisture, ridges, depressions, or other conditions which would prevent satisfactory installation of roof system.

D. Start of work constitutes acceptance of deck substrate and site conditions.

3.03 APPLICATION OF INSULATION – GENERAL INSTRUCTIONS

A. Manufacturer's Instructions: In regard to attachment, the manufacturer's instructions or specifications shall determine the suitability for an application. Installation must meet ASCE 7 criteria and meet local governing building codes.

B. Precautions: The surface of the insulation must not be ruptured due to overdriving of fasteners.

C. Thermal insulation boards shall be laid on the substrate in parallel rows with end joints staggered and butted as close as possible. All joints shall be tight and at the roof perimeter and roof penetrations, insulation shall be cut neatly and fitted to reduce openings to a minimum. **All openings one-fourth inch (1/4") or larger shall be filled with insulation.**

D. Insulation shall be tapered or feathered at drains and scuppers to provide proper drainage (if applicable).

E. No more insulation shall be installed than can be covered by the completed roof system by the end of the day or the onset of inclement weather.

F. Tapered insulation and crickets, when specified, shall be placed in accordance with the drawings and/or as required to minimum of NRCA standards.

3.04 APPLICATION OF INSULATION - ADHERED IN HOT OVER BASE SHEET

A. Specified flat stock insulation shall be bonded to the specified base sheet with a solid mopping of steep asphalt Type IV, as required by slope (NRCA), at the minimum rate of twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface and immediately walked in place.

B. The top surface of the first layer of flat stock insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified flat stock insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

C. The top surface of preceding insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified tapered insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

D. The top surface of the preceding insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified cover board shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

3.05 APPLICATION OF INSULATION - ADHERED IN COLD

A. Specified flat stock insulation shall be **bonded to the specified base sheet** with cold insulation adhesive, per manufacturer's applications rates and guidelines, and immediately walked in place.

B. Second layer of specified flat stock insulation shall be bonded to the top surface of the first layer of insulation with cold insulation adhesive, per manufacturer's applications rates and guidelines, and applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

C. Specified tapered insulation shall be bonded to the top surface of the previous layer of insulation with cold insulation adhesive, per manufacturer's applications rates and guidelines, and applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

D. Specified cover board shall be bonded to the top surface of the preceding layer of insulation and applied using offset joints, so that each layer breaks joints to a minimum of

3.06 APPLICATION OF INSULATION – LOOSE LAID and MECHANICALLY FASTENED

A. Flat stock insulation shall be laid with edges parallel to flutes and bearing on deck surface/flats. The long dimension of first layer of insulation must be fully supported by the top flange of the metal deck. The edges of insulation boards must not cantilever over the flutes of the metal deck.

B. First layer of specified flat stock insulation shall be loose laid over the deck. Boards shall be staggered and butted as close as possible with voids over one-fourth inch (1/4") to be filled.

C. The second layer of specified flat stock insulation shall be applied over the first layer using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer. Second layer of insulation shall be mechanically fastened through the first layer into the deck to conform to the ASCE 7 criteria for wind uplift as dictated by wind zone applicable to location of project.
   1. Fasteners and fastening patterns shall be determined by building height, location and geographical area of the United States. It is the contractor's responsibility to consult current publications, literature, and bulletins of IBC and the manufacturer that are in effect at the time of this project. Boards shall be staggered and butted as close as possible with voids over one-fourth inch (1/4") to be filled.

D. The top surface of the last layer of insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and a one-eighth inch (1/8") tapered layer of insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

E. The top surface of the preceding layer of insulation shall be coated **with hot asphalt** using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified cover board shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

3.07 APPLICATION OF INSULATION TO METAL ROOF

A. Application of Insulation Fillets to Fill Flutes of Metal Roof: Flutes of metal panels shall be filled with EPS board to match depth and configuration of flute prior to applying specified roofing components. Hot wire cut sections of specified EPS insulation to fit between the existing metal standing seam rib configurations so as to minimize any gaps between the insulation and the metal roof panel. Prior to installation of the insulation fillets, the metal roof panels must be dry with all surface contaminants, mastics, dirt and debris removed. Substrate repair shall be performed as required to minimum of NRCA standards. If necessary, the EPS shall be tacked down with appropriate compatible adhesive to prevent any slipping or sliding of the EPS Filler.

3.08 ADJUSTING

A. Remove insulation which has been damaged (broken, cracked, punctured, wet, etc.) and install acceptable new units before installation of roof system.

SECTION 07 41 13
METAL R- PANEL ROOF SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. New metal roof panel and related components to match existing color, type, profile, dimension and attachment. Gauge thickness to be a minimum of 22ga metals for all flat roof systems and manufacturer recommended for barrel roof applications and matching existing conditions.

1.02 BUILDINGS INCLUDED

A. 5th Street Community Center

PART 2 - MATERIALS

2.01 PREFINISHED METAL ROOF PANEL

A. Shall be minimum 22-gauge, siliconized polyester finish "R" Panel to match existing panel profile and dimension, color to be bright white, as manufactured by McElroy Metal, Inc. or approved equal. Shall consist of a cleaning and chemical pretreatment of metal surfaces and a corrosion inhibitive zinc chromate pigmented bond coat, and a finish coat of thermosetting straight siliconized finish, white in color, applied with a film dry thickness of one (1.0) mil, plus or minus 0.2 mil., and shall meet the following physical properties:
   1. Color Coat System: Shall be galvanized steel sheet conforming to ASTM 525-79 G-90, and ASTM A 446, Grade D, with minimum yield of 50,000 psi.
   2. Hardness: Pencil hardness shall be a minimum of H or F, whichever is least hard, using the flattened point of an Eagle Turquoise pencil applied at a 45° angle to the panel. Hardness is specified as the softest pencil which fails to penetrate the surface.
   3. Gloss: Gloss rating shall be a minimum of 20 and a maximum of 35 as measured on a Gardner 60° Glossmeter, in accordance with ASTM D 23.
   4. Humidity Resistance: Humidity resistance shall be tested using a cabinet maintained at 100% relative humidity and 100° F according to ASTM D 2247. After 1,000 hours of exposure of the exterior coat no more than ten percent (10%) of the exposed area shall contain more than a few No. 8 blisters according to ASTM D 714. After four hours for recovery, there shall be no loss of adhesion according to the standard Scotch Brand No. 610 cellophane tape test.
   5. Accelerated Weathering: Accelerated weathering shall be tested by use of an Atlas XW-R weather-o-meter operated on the "Dew" cycle for 125 hours per week using 60 minutes of light and 60 minutes of darkness. During the light cycle the cabinet dry bulb temperature shall be 115° F ± 3° F. After 500 hours there shall be no cracking, checking, crazing or loss of adhesion. There shall be only slight fading and no chalking in excess of No. 8 rating when tested with Scotch Brand No. 610 cellophane tape.

6. Abrasion Resistance: Abrasion shall be tested by use of a Tabor Abrasor Model No. 140PT using a 500 gram weight. The minimum number of cycles to first break through to the metal substrate shall be 1,000 cycles.
7. Reverse Impact Adhesion: Reverse impact shall be tested using a Gardner impact tester with five-eighths inch (5/8") steel ball at 60 psi force. When tested at 70-80° F, there shall be no loss of coating adhesion unless caused by failure of the substrate.
8. Resistance to Dry Heat: The painted panels shall be tested for their resistance to dry heat by placing them in an air circulating oven at 108° for 168 hours. After removal and cooling to room temperature there shall be no change in color, cracking, or loss of adhesion and the 60° Specular Gloss shall not change more than fifty percent (50%).

2.02 THERMAL-BATT INSULATION

A. Shall match existing insulation and "R" value and profile with polyvinyl protection sheet on the underside.

2.03 FASTENERS

A. Fastener for panel to purlin, and panel to panel attachment shall be No. 12, 14 x 1 inch self-drilling, self-tapping hex head, plated fastener with a separate five-eighths inch (5/8") O.D. formed steel washer and a neoprene sealing washer. Fastener shall be approved by manufacturer of metal panels.

2.04 CLOSURES:

A. Shall be as supplied by the manufacturer for use in weatherproofing open panel ends. Closures shall meet FM 1-90 attachment for wind uplift requirements.

2.05 METAL FLASHING COMPONENTS AND GUTTER

A. Shall be minimum 24-gauge, prefabricated components with same color and finish of the same manufacturer to match the required detail of the roof system.

2.06 TAPE SEALANT

A. Shall be as supplied from the manufacturer of the roof panel for use for joints and laps, and be seven-eighths inch by three-sixteenths inch (7/8" x 3/16") thickness.

PART 3 - EXECUTION

3.01 REFERENCE

A. The manufacturer's technical specifications shall be considered a part of this specification and should be referred to for more specific application procedures and recommendations. All pertinent details shall be in strict conformance with the standards and procedures as recommended by SMACNA (Sheet Metal and Air-Conditioning Manufacturer's Association) as required.

3.02 SUBSTRATE PREPARATION

A. Remove all existing metal roofing, insulation and related flashing components of the roof system down to the existing structural purlin. Contractor shall only remove and replace as much roofing material as can be reinstalled within the time limit as set forth by this specification.

3.03 INSTALLATION OF THERMAL BATT INSULATION

A. Install new batt type insulation to match existing "R" value, protected on two sides with polyvinyl sheeting. Insulation and attachment of new insulation shall be as recommended by the material manufacturer.

3.04 INSTALLATION OF NEW METAL ROOF SYSTEM

A. Contractor shall follow the manufacturer's specifications for installation of the new metal roof system.

B. Install factory supplied seamless panels as specified in the maximum length available from the approved manufacturer. Attachment of the new metal panel roof system shall be with exposed, specified fasteners. Fastening attachment shall meet Underwriters Laboratory and Factory 1-90 wind uplift requirements.

C. All roof panels shall be installed straight and watertight without waves, warps, buckles or fastening distortion. Any warped, buckled or distorted panels or portions thereof are not acceptable and shall be promptly replaced.

D. All panels shall be installed plumb, level and straight with all seams, ribs and fasteners parallel and shall conform to the design intended. Panel fastening shall provide proper allowance for expansion and contraction requirements.

E. Panel ends shall extend evenly over the eaves of the roof plane, to sufficiently drain into the new gutter assembly. All protection of the roof edge under the eave panels shall receive proper closures as required by the manufacturer for watertightness.

3.05 GENERAL REFERENCE

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

B. Metal work should be secured so as to prevent damage from buckling or wind. Where clips are shown, these are to be continuous.

C. All metal rooftop projections shall be replaced. New rooftop projection details shall be as recommended in NRCA or SMACNA handbooks. All rooftop projections shall be cleaned, all joint sealed, and painted with a rust inhibitive paint. Color to be selected by the Owner.

D. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges are to be seamed, form seams, and solder.

E. Expansion Provisions: Form expansion joints of intermeshing hooked flanges, not less than one inch (1") deep, filled with mastic sealant (concealed within joints).

F. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards.

G. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

3.06 FLASHING AT EAVES, RAKES AND RIDGE

A. Install manufacturer's prefabricated components for all eave and ridge flashing and as designated by the detail drawings. All flashing components shall be installed in strict accordance with the manufacturer's specific instructions, and in conformance with SMACNA recommendations. Any deviation from the manufacturer's recommendations or those of this specification must have approval in writing prior to the installation thereof.

B. All flashing components shall be minimum 24-gauge metal, color to match the new roof system and mechanically fastened in conformance with the manufacturer's recommendations.

C. All eave and rake profile flashing elements shall be high side eave trim to match the existing in profile and design, and installed with the manufacturer's specifications. All eave flashing shall include all additional components required for the installation of the flashing system, to include, but not be limited to, high eave side to rake corner, and to gutter boxes, etc.

D. All ridge cap flashing shall be prefabricated ridge flashing installed in accordance with the manufacturer's details and recommendations.

E. All roof projections and vents shall be replaced with new, to match the existing in profile and design, and painted to match the existing roof finish. All flashing shall be installed in accordance with the manufacturer's details and recommendations.

3.07 GUTTERS AND DOWNSPOUTS

A. Install new gutter system of the same finish as the new roof system and to the profile of the existing. Design of the new gutter shall be in conformance with the regulations of SMACNA recommendations for drainage requirements in regard to geographic areas and conditions and size of roof area.

B. All existing downspouts shall be reinstalled with the new gutter system, with installation and securement to the existing facade being the responsibility of the contractor. Any color variations shall be corrected and painted to match the existing finish of the roof system.

C. Provide new concrete splash blocks at the base of all downspouts on the existing built-up roof system, set in plastic cement.

END OF SECTION 07 41 13

SECTION 07 41 13.1
STANDING SEAM METAL ROOF SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included: The contractor shall provide all material, labor, and administration and other items to provide a complete standing seam metal roof system complying with performance requirements indicated and capable of withstanding structural movement, thermally induced movement and exposure to weather without failure or infiltration of water into the building interior.

B. Coordinate standing seam metal roof system with roofing substructure work.

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

1.02 SECTION INCLUDES

A. Preformed and prefinished standing seam metal roof system with continuous mechanically seamed ribs, concealed clips and fastening devices.

B. Color coordinated ridge, hip, valley, gable, eave, corner, rake, headwall, counterflashings and miscellaneous flashings and attaching devices.

C. Provide concealed clips, fasteners, closures and factory and field applied sealants as necessary to meet design criteria and ensure a weathertight installation.

D. Bituminous membrane roofing underlayment.

1.03 SYSTEM DESCRIPTION

A. Design Requirements:
   1. The standing seam metal roof system, including: panels, flashings, attachment clips and attachment screws shall be designed by the metal roof system manufacturer per to meet the following design criteria:
      a) 2006 version of the International Building Code, (IBC-2006).
      b) A basic wind speed of 100 mph.
      c) Listing of applicable loads by roof zones (interior, edges and corners).
      d) The building importance factor is one - Essential Facilities.
      e) Roof snow load is zero.
      f) The building exposure factor is "C", open terrain.
   2. The standing seam metal roof system manufacturer shall provide an engineered analysis of the roofing system, sealed by a registered Structural Engineer employed by the manufacturer and licensed in the State of Texas, verifying that the product and attachment methods will resist wind pressures imposed upon it pursuant to the design criteria and that the roofing system fully complies with all specified requirements.

3. The panel system shall bear fully documented proof that it has been independent laboratory evaluated using the U.S. Army Corps of Engineers Guide Specification (CEGS) 07416.
   a) Testing shall include establishment of ultimate and allowable system uplift capacities for both the "field" and "areas of discontinuity".
   b) "Proof" shall be defined as both the manufacturer and the product being included in the document entitled: "List of Approved Standing Seam Metal Roof Systems" as published by the U.S. Army Corps of Engineers.
4. Provide factory preformed panel system that has been pretested and certified by manufacturer to comply with specified requirements under installed conditions.
5. Provide factory engineered and tested end lap (splice) details at roof third points, per ASTM 2140 water immersion testing.
6. Provide continuous mechanically seamed ribs that inherently increase load span capability, stiffness and flexural stress handling capacity.
7. Provide continuous butyl sealant within the confines of the female flange.
8. Provide factory-preformed panel that has been tested and approved for a Class 4 Impact (Hail) resistance rating per UL 2218. Listing shall be present on the UL website (Refer to Underwriters Laboratories website at www.ul.com).
9. On-site or field manufactured panels are prohibited. Field curving of pre-manufactured panels is acceptable.

B. Structural Requirements:
   1. Panel structural properties determined in accordance with latest edition of American Iron and Steel Institute's "Cold Formed Steel Design Manual," using "effective width" concepts.
   2. Wind uplift design for roof assemblies shall be calculated by the standing seam metal roofing system manufacturer per ASTM E 1592. Calculations shall include establishment of ultimate and allowable roof system uplift capacities for both the "field" and "areas of discontinuity".
   3. Provide confirmation of positive and negative buckling moments and uplift capacity determined by full-scale tests.

C. Substrate Criteria:
   1. Standing Seam Metal Roofing System: Engineer standing seam metal roof system installed over Bituminous membrane underlayment and four inch (4") Polyisocyanurate Nailbase clad rigid insulation over metal decking that is capable of withstanding the design loads when applied at 90° to the surface and spaced as shown on the approved shop drawings.
   2. Waterproof Membrane Underlayment: Apply waterproof Bituminous membrane under entire roof surface per manufacturers written instructions.

D. Environmental Requirements: Actual independent laboratory certified test results must be submitted.
   1. Resistance to air infiltration (Tite-Loc-Plus): .002 cfm per linear foot of joint when tested in accordance with ASTM E 1680 at static test pressure differential of 12 psf.
   2. Resistance to water infiltration (Tite-Loc-Plus): No leakage through panel joints when tested in accordance with ASTM E 1646 at static test pressure differential of 12 psf.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, engineered detail drawings, and installation instructions.

B. Shop Drawings:
1. Submit file (PDF) which can be printed to scale an electronic of approval / design drawings produced by the standing seam metal roof system manufacturer indicating thickness and dimensions of parts, fastenings and anchoring methods, details and locations of seams, transitions and other provisions necessary for thermal expansion and contraction.
2. Indicate roof terminations, clearly showing flashings and change of direction caps.
3. Clearly indicate locations of field and factory applied sealant.
4. Show locations, spacing patterns and types of hold-down clips and fasteners.
5. Provide file (PDF) which can be printed to scale an electronic provided by the standing seam metal roof system manufacturer showing a complete roof plan, roof panel layout, and cross section details for every individual condition of the entire roof system.

C. Samples:
1. Submit two (2) samples, twelve inch (12") long by full width of panel, showing proposed metal gauge and seam profile.
2. Submit color samples on metal for Architect's selection from manufacturer's full range of color offerings including custom (metallic colors) colors.

D. Test Reports: Submit verification the panel system meets the Environmental Conditions for the indicated test pressures and performance listed for Air and Water Infiltration.

E. Engineered Design Calculations:
1. Submit panel system manufacturer's design calculations verifying the panel system meets the specified building code as defined in Section 1.03 System Description, A. Design Requirements listed above.
2. Design calculations shall be sealed by a registered Structural Engineer employed by the standing seam metal roof system manufacturer and licensed in the State of Texas.

F. Certification:
1. Submit manufacturer's certification that materials and finishes meet specified requirements.
2. Submit written verification of panel Applicator's factory installation training performed by the standing seam metal roof system manufacturer and a copy of the Panel Applicator's "Authorized Applicator" certificate

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
1. Minimum twenty (20) years experience in the fabrication of standing seam metal roof systems on projects of similar size and scope. Upon request, submit a minimum of five (5) project references for Architect's review. List project address, date of installation, Architects and Owner's name and telephone numbers.

2. No other manufacturer of standing seam metal roof systems will be accepted without prior written approval of the Architect and based upon the manufacturer verifying the product can meet or exceed all performance criteria listed in these specifications.
3. Requests to be listed as an approved manufacturer must be submitted in writing a minimum fifteen (15) days prior to bid date accompanied by product literature, technical information, sealed engineer's calculations verifying conformance, and a product sample. Approved manufacturers will only be set forth in a written and issued addendum.
4. No substitutions will be permitted after the bid date.

B. Applicator Qualifications:
1. Panel Applicator must have a minimum of five (5) years experience in the application of standing seam metal roof systems.
2. Panel Applicator must be factory trained by the standing seam metal roof system manufacturer prior to the bid date in order to obtain a contract for installation.
3. Use adequate members of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this Section.
4. Use equipment of adequate size, capacity and numbers to accomplish the work of this Section in a timely manner.
5. Upon request, submit a minimum of five (5) successfully completed projects of similar size and scope. List project address, date of installation, Architect and Owner's name and telephone numbers.
6. Single Source Responsibility: Provide all items of the standing seam metal roof system work specified herein by a single roofing contractor to provide undivided responsibility.

C. Regulatory Requirements: Comply with all requirements of applicable building codes and other agencies having jurisdiction for positive and negative design loads of standing seam metal roof systems.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery:
1. Delivery of material shall be made only after suitable facilities for its storage and protection area available on the site.
2. Protect products and accessories from damage and discoloration during transit and at project site.
3. Upon receipt of prefinished preformed metal panels, flat sheets, flashings and panel accessories, Panel Applicator shall examine each container for damage and for completeness of the consignment.

B. Storage:
1. Store materials out of the weather in a clean, dry place. One end of each container should be slightly elevated and covered with a loose weatherproof covering to prevent condensation.
2. Panels and/or flashings with strippable film must not be stored in areas exposed to direct sunlight.

3. Care should be taken to prevent contact with any substance that may cause discoloration.
4. Store materials to provide ventilation and prevent bending, abrasion or twisting.
5. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.

C. Handling:
1. Care should be taken to avoid gouging, scratching or denting.
2. Do not allow traffic on completed roof. If required, provide cushioned walk boards.
3. Protect installed products from damage caused by foreign objects and construction until completion of project.
4. Comply with pertinent provisions of Supplementary General Conditions.

1.07 WARRANTY

A. Furnish manufacturer's standard twenty (20) year, non-prorated, material and labor written finish warranty stating that architectural fluorocarbon finish will be:
1. Free from fading or color change in excess of five (5) NBS units as measured per ASTM 2244-68.
2. Will not chalk in excess of a numerical rating of seven (7) when measured in accordance with standard procedures specified in ASTM D 659-74.
3. Will not peel, crack, chip or delaminate.

B. Furnish a written warranty signed by the Panel Applicator for a two (2) year period from the date of substantial completion of the building guaranteeing materials and workmanship for weathertightness of the roofing system, flashings, penetrations and against all leaks.

C. Special Weathertight Warranty: Furnish manufacturer's 20 year, full system, non-prorated, no dollar limit weathertight warranty to be jointly signed by the manufacturer and the Panel Applicator.

D. Protect products and accessories from damage and discoloration during transit and at project site. Store sheets and components in dry storage area to prevent condensation.

E. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.

1.08 PRE-INSTALLATION CONFERENCE

A. Convene prior to commencing work of this Section.

B. Attendants: Panel Applicator, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, Architect, Owner or Owner's Representative, Roofing system manufacturer's technical representative and General Contractor.

C. Record discussion, decisions and agreements reached and furnish a copy to each attendant.

D. Review installation procedures and coordination required with related Work.

3. Factory fabricated panel with integral continuous overlapping seams suitable for continuous locking or crimping by mechanical means during installation. Onsite or field manufactured panel profiles are not acceptable.
4. Seam Size:
   a) Male leg: 2" high, on Tite-Loc Plus
   b) Female leg: 2" high, on Tite-Loc Plus
5. Provide butyl sealant within the confines of female seam flange, on the bottom edge of female seam flange, designed to seal against adjacent male panel leg.

B. Clip/Fastener Assemblies:
1. Typical clip, UL-90 requirements:
   a) Wind Rated Fasteners: As per approved manufacturer's engineered shop drawings.
   b) Wind Rated Clip: Sliding 22-gauge galvanized steel hook in combination with a double fastened 18-gauge galvanized steel base, both at Fy (MIN) = 33 ksi. Clip hook shall have a shop installed hot-melt butyl sealant for continuity of seal at clip locations.
2. Typical Low Clip Requirements:
   a) UL-90 Fasteners: As per approved manufacturer's engineered shop drawings.
   b) Sliding 26-gauge at Fy=40ksi (MIN) galvanized steel hook in combination with a double fastener 18-gauge at Fy = 50 ksi (MIN) galvanized steel base. Clip hook shall have a shop installed hot-melt butyl sealant for continuity of seal at clip locations.
3. Standard Flashing Fasteners: Same as Wind Rated Fasteners specified above.

C. Accessories:
1 Provide manufacturer's standard accessories and other items essential to completeness of the standing seam metal roof installation.
2. Roof Jacks: Manufacturer's standard EPDM with an aluminum sealing base ring; for openings twelve inches (12") or smaller, centered in panel; do not interrupt seam.
3. Roof Curbs: fabricated to the specifications of the standing seam metal roof manufacturer, thereby assuring compatibility with the roof construction framing and covering. Roof curbs shall be of sufficient size and design to coordinate with requirements for support of heat and smoke vents specified in another Division 7 Section. Roof curb flashing and framing shall provide for the expected expansion and contraction of the standing seam metal roofing system.
4. Gutters and downspouts will be fabricated to the same gauge and specification as panel.

D. Field Sealants:
1. Color coordinated primerless silicone, urethane, or high grade, non-curing butyl as recommended and engineered by panel manufacturer.
2. Do not use sealants containing asphalt.

E. Bituminous Membrane Waterproof Underlayment:
1. 40 mil flexible, self-adhering rubberized asphalt sheet membrane with a polymeric film on the surface and a removable silicone-treated release sheet on the adhesive side
2. Bituminous membrane underlayment shall be rated for high temperature resistance up to 260 F.
3. Bituminous membrane shall have a maximum permeance rating of 0.05 perms.

4. Minimum thickness shall be 40 mils.

F. Field Fabricated four inch (4") Polyisocyanurate Nailbase Clad Rigid Insulation: Rigid closed cell polyisocyanurate, four inch (4") thickness, clad on top side with minimum three-fourths inch (3/4") treated plywood surface; verify compatibility with roofing membrane manufacturer.

2.03 FABRICATION

A. Panels:
1. Provide factory formed panel widths of sixteen inch (16"), with a one and one-half inch (1-1/2") high standing seam.
2. On-site or field manufactured panels are prohibited. Field curving of pre-manufactured panels is acceptable.
3. Provide panels with no end laps (splices).
4. Roof panels shall have flush horizontal and vertical surfaces to facilitate sealing at terminations.

B. Seams:
1. Panel seams shall interlock entire length of seam, by means of a mechanically driven rib seamer.
2. Design standing seam to lock up and resist joint disengaugement during design wind uplift conditions as calculated to comply with local building codes and design uplift criteria.
3. Provide factory sealant within confines on trailing edge of female seam leg to aid in resistance of leaks and provide panel-to-panel seal while allowing expansion and contraction movement, and the seams shall be continuously locked or crimped together by mechanical means during installation.

C. Clips:
1. Provide Wind Rated Clips designed to allow panels to thermally expand and contract and provide a minimum of ± one inch (1") of thermal movement. Clips shall incorporate a self-centering feature to allow a minimum of one-half inch (1/2") of movement in either direction for a total movement of one inch (1").
2. Clips shall be designed to meet positive and negative pressures as calculated and engineered by the standing seam metal roofing system manufacturer.
3. Fasteners shall penetrate the metal deck a minimum of three-fourths inch (3/4").

D. Engineer panels to use concealed anchors that permit expansion and contraction.

E. Trim/Flashings:
1. Prefinished sheet metal designed by the manufacturer in the same gauge, material and finish as the standing seam metal roofing system.
2. Locations, design, sealing and fastening methods as per the manufacturer's approved engineered shop drawings.

2.04 FINISH

A. Fluorocarbon Coating:
1. Full strength 70% Kynar 500® coating baked on for fifteen (15) minutes at 450°F to dry-film thickness of 1.0 mil.
2. 15% reflective gloss (ASTM D 523). (Low Gloss).
3. 0.3 mil baked on epoxy primer.
4. Backer side of panels to be painted with an off-white polyester coating.
5. Top Side Color: As selected by Architect from manufacturer's full range of color offerings, including metallic and custom colors

PART 3 - EXECUTION

3.01 CONNECTING WORK

A. General: Provide metal roofing panels of full length from eave to ridge when possible.
1. Field cutting by torch is not permitted.
2. Do not apply roofing during inclement weather.
3. Do not apply roofing to damp or frozen deck surface.
4. Do not expose materials vulnerable to water, wind or sun damage in quantities greater than can be weatherproofed during the same day.
5. Rigidly fasten point of fixity (high center) of metal roof panels and allow free eave movement due to thermal expansion and contraction per the approved shop drawings.
6. Install screws fasteners with power tools having controlled torque.
7. Locate and space fasteners per the approved shop drawings in true vertical and horizontal alignment.
8. Install all flashings per the approved shop drawings as work progresses. Position roof jacks only in the flat of the panel; do not alter standing seam ribs.

B. The Panel Applicator shall examine all surfaces on which their work is to be applied, and shall notify the Architect in writing if not suitable to receive their work. Work on any surface shall constitute acceptance of this surface by the Panel Applicator. After beginning installation, install approximately 500 square feet of panels for Architect's approval, before proceeding with substantial work.

C. Wood Members, Units: Comply with requirements of Section 06114 Wood Blocking of these specifications for nailers and other wood members indicated as roofing system work. Provide wood pressure treated with water-borne preservatives for above ground use. All nailers shall be anchored sufficiently to resist a force of 75 pounds ± per linear foot in any direction. Provide nailers at all locations required by the roofing manufacturer (whether shown or not) – verify conditions prior to commencement of roofing installation.

3.02 FIELD MEASUREMENTS

A. Panel Applicator must take field measurements to verify or supplement dimensions indicated prior to fabrication of any materials. Where field measurements cannot be made without delaying the work, either establish opening dimensions and proceed with fabricating panels without field measurements or allow for trimming panel units.

3.03 WATERPROOF UNDERLAYMENT INSTALLATION

A. Fully adhere one ply of 40 mil self-adhering waterproofing underlayment over entire roof surface. Stagger joints perpendicular to metal roofing panels and over parapet blocking per manufacturer's written instructions, but with not less than six inch (6") laps at vertical (side) laps and four inch (4") horizontal (top and bottom) laps.

B. Install an extra layer of minimum thirty-six inch (36") wide waterproof membrane down all valley, rake wall, eaves and gable conditions, using a minimum six inch (6") horizontal (top and bottom) lap.

3.04 METAL ROOFING INSTALLATION

A. Workmanship shall conform to standards set forth in the architectural sheet metal manual as published by SMACNA.

B. Comply with manufacturer's instructions for assembly, installation, and erection in order to achieve a weathertight installation. Install in accordance with approved shop drawings.
1. Anchor securely in place using clips and fasteners spaced in accordance with manufacturer's recommendations for design wind load criteria.
2. Panels should be installed in such a manner that horizontal lines are true and level and vertical lines are plumb.
3. Field apply sealant to penetrations, transitions, and other locations as necessary for an airtight, waterproof installation.
4. Remove all protective film, if any, before installation of materials.

C. Dissimilar Metals: Do not allow panels or flashings to come into contact with dissimilar metals.

3.05 CLEAN UP

A. Clean exposed surfaces of work promptly after completion of installation.

B. Only minor scratches and abrasions will be allowed to be touched up. Any other damaged material shall be replaced.

C. Leave work areas clean, free from grease, dirt, finger marks, stains and stains.

D. Remove scrap and debris from surrounding grounds and work areas daily.

3.06 PROTECTION

A. Metal Roofing: Protect work as required to ensure that the standing seam metal roof system will be without damage at time of final completion.

END OF SECTION 07 41 13.1

SECTION 07 53 50
ADHERED MULTI-PLY ROOF SYSTEM OVERLAY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 INSTALLER QUALIFICATIONS

A. Roofing Installer must be:
1. Currently prequalified with the Owner in accordance with Owner's prequalification requirements.
2. Currently in good standing with the manufacturer.

B. It shall remain each Contractor's responsibility to determine his current status with the manufacturer's certification plan.

1.03 QUALITY ASSURANCE

A. Applicator/Installer:
1. Acceptable to roof material manufacturer for the manufacturer's warranty requirements.
2. Five (5) years successful experience on projects similar in size and scope.
3. Experienced in the type of roofing work required.
4. Successfully completed previous projects warranted by the manufacturer.

B. Testing Laboratory Services: Test results shall meet or exceed established standards.

C. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

D. Comply with governing local, state, and federal regulations, safety standards, and codes.

1.04 REFERENCES (INCLUDING LATEST REVISIONS)

A. American Society for Testing and Materials:
1. ASTM B 209 - 90, Specification for Aluminum and Aluminum Alloy Sheet and Plate
2. ASTM C 719 - 86, Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement (Hockman Cycle)
3. ASTM C 794 - 80 (1986), Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
4. ASTM C 920 - 87, Specification for Elastomeric Joint Sealants
5. ASTM D 312 - 89, Specification for Asphalt Used in Roofing
6. ASTM D 1863 - 86, Specification for Mineral Aggregate Used on Built-up Roofs
7. ASTM D 2178 - 89, Specification for Asphalt Glass Felt Used in Roofing and Waterproofing

8. ASTM D 2824 - 85, Specification for Aluminum - Pigmented Asphalt Roof Coatings
9. ASTM D 4586 - 86, Specification for Asphalt Roof Cement, Asbestos Free
10. ASTM A 361 - 90, Sheet Steel, Zinc-Coated (Galv.) by the Hot-Dip Process for Roofing and Siding
11. ASTM C 177, Test for Thermal Laboratory Services
12. ASTM C 728, Perlite Thermal Insulation Board

B. Industry Standards:
1. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual
2. Single-ply Roofing Institute (SPRI) - A Professional Guide to Specifications Manual
3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual

4. American Society of Civil Engineers – ASCE 7
5. Wind Design Standard for Edge Systems-- ES-1

1.05 SUBMITTALS

A. Samples and Manufacturer's Submittals: Submit prior to delivery or installation.
1. Samples of all roofing system components including all specified accessories.
2. Submit samples of proposed warranty complete with any addenda necessary to meet the warranty requirements as specified.
3. Submit latest edition of manufacturer's specifications and installation procedures. Submit only those items applicable to this project.
4. A written statement from the roofing materials manufacturer approving the installer, specifications and drawings as described and/or shown for this project and stating the intent to guarantee the completed project.
5. Manufacturer's Equiviscous Temperatures (EVT) for the specified bitumens.

B. Shop Drawings: Provide manufacturer's approved details of all perimeter conditions, projection conditions, and any additional special job conditions which require details other than indicated in the drawings.

C. Maintenance Procedures: Within ten days of the date of Substantial Completion of the project, deliver to the Owner three copies of the manufacturer's printed instructions regarding care and maintenance of the roof.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

B. Deliver materials requiring fire resistance classification to the job with labels attached and packaged as required by labeling service.

C. Deliver materials in sufficient quantity to allow continuity of work.

D. Handle and store material and equipment in such a manner as to avoid damage. Liquid products shall be delivered sealed, in original containers.

E. Handle rolled goods so as to prevent damage to edge or ends.

F. Select and operate material handling equipment so as not to damage existing construction or applied roofing.

G. Moisture-sensitive products shall be maintained in dry storage areas and properly covered. Provide continuous protection of materials against wetting and moisture absorption. Store roofing and flashing materials on clean raised platforms with weather protective covering when stored outdoors.

H. Store rolled goods on end.

I. Protect materials against damage by construction traffic.

J. The proper storage of materials is the sole responsibility of the contractor and any wet or damaged roofing materials shall be discarded, removed from the project site, and replaced prior to application.

K. Comply with fire and safety regulations, especially with materials which are extremely flammable and/or toxic. Use safety precautions indicated on labels.

L. Products liable, such as emulsions, to degrade as a result of being frozen shall be maintained above 40° F in heated storage.

M. No storage of materials shall be permitted on roof areas other than those materials that are to be installed the same day.

1.07 SITE CONDITIONS

A. Job Condition Requirements:
1. Apply roofing in dry weather.
2. Do not apply roofing when ambient temperature is below 40° F (4° C).
3. Coordinate the work of the contractor with the work to be performed by the Owner's personnel, to ensure proper sequencing of the entire work. The Owner's personnel will be erecting interior protection for equipment, if required. The contractor is to schedule his work so that adequate time is allowed for the Owner's personnel to perform the work. No roof work shall be performed until the Owner's personnel have completed erection of the interior protection in that area.
4. Proceed with roofing work only when weather conditions are in compliance with manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with specifications.
5. Schedule the work so the building will be left watertight at the end of each day. Do not remove more roofing material than can be reinstalled in any working day.
6. All surfaces to receive new roofing shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Owner. Load placed on the roof at any point shall not

exceed the safe load for which the roof is designed.

7. The contractor shall take all necessary precautions to protect the roof mat and deck from damage. The contractor shall be responsible for repairing all new areas of damage caused by the negligence of the contractor, at the contractor's expense. The Owner's on-site representative shall determine damage caused by contractor negligence.
8. The contractor shall follow local, state, and federal regulations, safety standards, and codes for the removal, handling, and disposal of asbestos containing materials, if present. When a conflict exists, use the stricter document.
9. Follow insurance underwriter's requirements acceptable for use with specified products or systems.
10. Due caution should be exercised so as not to alter the structural integrity of the deck. When cutting through any deck, care should be taken so as not to damage the deck or any part of the deck, such as post tension cables, etc.
11. All kettles shall have an automatic thermostat control, and temperature gauge, all in working order.
12. The contractor is to verify the location of all interior ducts, electrical lines, piping, conduit, and/or similar obstructions. The contractor is to perform all work in such a manner as to avoid contact with the above-mentioned items.
13. Surface and air temperatures should be a minimum 45° F during applications of cleaner and waterproof coating and remain above 45° F for a minimum of four (4) hours following applications. Verify compatibility of cleaner with coatings, paints, primers and joint sealers specified. Advise Owner's representative of any problems in this regard prior to commencing cleaning operations.
14. Temporary Sanitary Facilities: The contractor shall furnish and maintain temporary sanitary facilities for employees use during this project. These will be removed after the completion of the project. All portable facilities shall comply with local laws, codes, and regulations.

B. Protection of Work and Property:

1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his proposal.
2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.
3. Twenty-four Hour Call: The contractor shall have personnel on call 24 hours per day, seven (7) days per week for emergencies during the course of a job. The Owner's Project Manager is to have the 24 hour numbers for the contact. Contractor must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact. Numbers available to the Owner's Project Manager are to be mobile, home and office numbers for:

a) Job Foreman
b) Job Superintendent
c) Owner or Company Officer

C. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds must be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

D. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

E. Use of Premises:
1. The contractor is advised that the Owner will occupy the building at all times, and the contractor must provide all safeguards required to protect personnel and to keep noise levels as low as reasonably possible for each operation.
2. The contractor shall:
a) Coordinate work in such a manner as to not interfere with the normal operation of the building.
b) Assume full responsibility for protection and safekeeping of products stored on premises.
c) Agree to hold the Owner harmless in any and all liability of every nature and description which may be suffered through bodily injuries, including death of any persons by reason of negligence of the contractor, agents, employees, or subcontractors.

F. Cleaning and Disposal of Materials:
1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean and shall allow no roofing materials to remain on the outside walls.
2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. A suitable scrap chute or hoist must be used to lower any debris. At completion, all work areas shall be left broom clean and all contractor's equipment and materials removed from the site.
3. All bituminous or roofing related materials shall be removed from ladders, stairs, railings, and similar parts of the building.
4. Debris shall be deposited at an approved disposal site.

1.09 WARRANTY

A. Twenty (20) Year NDL with wind speeds up to 120 mph Warranty: The complete roofing system shall be guaranteed for a minimum of twenty (20) years from the date of Substantial Completion for this project. Guarantee responsibilities shall be as follows:
1. Roofing contractor shall guarantee the entire roofing system for a period of two (2) years from the date of Substantial Completion.
2. The materials manufacturer shall guarantee the entire roofing system for a total

period of twenty (20) years from the date of substantial completion.

3. Membrane manufacturer shall provide the written warranty as specified.
4. The entire roofing system shall be guaranteed to be watertight and against any failures of workmanship and materials. Repair of the system, including materials and labor, shall be done at no cost to the Owner.
5. Warranty repairs shall be performed by a certified installer. The repairs shall be performed in accordance with the manufacturer's written instructions and recommended procedures so as to not void the warranty.

B. During the proposal period each Contractor shall make arrangements with the materials manufacturer to provide the required warranty. Refer to paragraph 1.05 SUBMITTALS for requirements concerning submittals of warranty.

PART 2 - PRODUCTS

2.01 GENERAL

A. Compatibility: Provide materials that are recommended by manufacturers to be fully compatible with indicated substrates, or provide separation materials as required to eliminate contact between incompatible materials.

B. Materials herein specified shall be supplied or approved in writing by the manufacturer issuing the warranty.

C. The white polyester reinforced fleece backed adhered Elvaloy® roofing system shall only be applied by manufacturer approved and trained roofing contractors.

D. The manufacturer shall have 15 years UL listing for the membrane to be used on the project. Membrane manufacturer shall have a minimum of 15 years FM approval, and 15 years manufacturing experience with the roofing membrane specified for this project. Warranty issued supplier shall not use membrane manufactured by some other manufacturer.

E. All roofing and roof accessories shall be installed in compliance with manufacturer's current specifications and details.

F. All materials used on the project shall be asbestos free.

2.02 ROOFING MEMBRANE

A. Shall be PVC based membrane reinforced with DuPont Elvaloy KEE resin modifier polyester reinforced membrane, white, minimum thickness 67-mil nominal.

B. ASTM D4434 "Standard Specifications for Polyvinyl Chloride Sheet Roofing". Classification: Type III or Type IV as defined by ASTM Standard.

C. Roof Membrane- Pre Approved membranes.

1. Sure Flex Kee HP by Carlisle Syntec
2. G410 EnergySmart Roof Membrane by Sarnafil (Non-Elvaloy Acceptable)
3. JM PVC DuPont Elvaloy KEE by Johns-Manville
4. FTR SM or XT Membrane by Fibertite Roofing

D. A white 60 mil polyester reinforced fleece backed Elvaloy® membrane shall have the following minimum physical properties.

Property	Test Procedure	Physical Properties	
Color		White	
Thickness	ASTM D 751	67 mil Nominal	
Roll Size		76" x 90'	
Breaking Strength	ASTM D 751	325 x 324 lbf	
Tear Strength	ASTM D 751	89 x 109 lbf	
Seam Strength	ASTM D 751	295 lbf	
Elongation	ASTM D 751	50% x 42%	
Heat Aging	ASTM D 3045	>90 %	
Low Temp Bend	ASTM D 2136	Pass (-40° F)	
Static Puncture Resistance	ASTM D 5602	Pass	
Dynamic Puncture Resistance	ASTM D 5635	Pass	
Permeance	ASTM E 96	0.003 Perms	
Dimensional Stability	ASTM D 1204	0.3%	
Weight Change after Water Immersion		ASTM D 570	1.20%
Accelerated Weathering	ASTM G 155	Pass	
Fungi Resistance	ASTM G 21	No growth	
Solar Reflectivity	ASTM C 1549	0.82 (white)	
Emissivity	ASTM C 1371	0.91 (white)	
Solar Reflectance Index (SRI)	ASTM E 1980	109 (white)	
Underwriters Laboratory	Class A	Approved	
Factory Mutual	Class 1-90	Exceeds	
Thermoplastic Membrane	ASTM D 4434	Exceeds	

2.03 FLASHING MEMBRANE

A. Shall be a white, Elvaloy polyester reinforced flexible membrane use for adhered applications to approved substrate using VOC-complaint adhesive.

B. Flashing Membrane shall confirm to the following properties:

Property	Test Procedure	Physical Properties
Color		White
Thickness	ASTM D 751	60 mil Nominal
Breaking Strength	ASTM D 751	298 x 278 lbf
Seam Strength	ASTM D 751	286 lbf
Tear Strength	ASTM D751	89 x 109 lbf
Elongation	ASTM D 751	35% x 34%
Heat Aging	ASTM D 3045	>90%
Static Puncture Resistance	ASTM D 5602	Pass
Dynamic Puncture Resistance	ASTM D 5635	Pass
Low Temperature Bend	ASTM D 2136	Pass @ -40°F
Permeance	ASTM E 96	0.003 Perms
Dimensional Stability	ASTM D 1204	0.3%
Wt. Change after Immersion	ASTM D 570	1.20%
Accelerated Weathering	ASTM G 155	Pass
Fungi Resistance	ASTM G 21	Pass
Solar Reflectivity	ASTM C 1549	0.82
Solar Emissivity	ASTM C 1371	0.91
Solar Reflectance Index (SRI)	ASTM E 1980	109
Underwriters Laboratory		Class A
Factory Mutual		Class 1-90

2.04 NON-REINFORCED MEMBRANE

A. The non-reinforced membrane shall have the following minimum properties, as by the primary membrane manufacturer
   1. Description: A minimum thickness of 60 Mil, non-reinforced thermoplastic white membrane used for adhered roof applications
   2. Use: Inside/outside corners, multiangled intersections, sealant pockets and other conditions where molding of the membrane is required.

2.05 BITUMEN

A. Shall be ASTM D 312 Type IV steep asphalt.

Slope	Interply	Top Pour	Backnail	Strap
0 - ½" per 12"	Type IV	Type IV	No	No
½" - 2" per 12"	Type IV	Type IV	Yes	Strap if Possible
2" - 3" per 12"	Type IV	Type IV	Yes	Yes

2.06 ROOFING INSULATION ADHESIVE

A. Shall be a dual component, reaction cure polyurethane adhesive, meeting the following physical properties, as manufactured or supplied by the membrane manufacturer.

Density	ASTM D-1622	Free Rise 3.2 lb/cf
Compressive Strength	ASTM D-1621	Parallel 38 psi @ 6% deflection
Tensile Strength	ASTM D 1623	35 psi
Water Absorption	ASTM D 2843	5.1%
Closed Cell Content	ASTM D 2856	90% min.; R-value= 3.8 new
Weight/Gallon (Liquid Components)		"Part 1" Component = 10.32 lbs.
		"Part 2" Component = 8.54 lbs.
		"Part 1" Component = 225 cps
		"Part 2" Component = 275 cps

2.07 CAULKS

A. Sealant for use at coping joints, reglet joints, etc., shall be a one-component urethane non-sag, gun grade sealant designed for use in active exterior joints, and shall meet or exceed Federal Specification No. 1 TT-S-00230C, Type II, Class A, ASTM C 920. Where joint surfaces are contained or are contaminated with bituminous materials, provide manufacturer's modified-type sealant.

B. To seal the leading edge of the membrane, to bond membrane at terminations with metal, and for open seam repair, sealant shall be a thermosetting, solvent free, non-slump, self-fixturing, multipurpose structural sealant which shall meet the following physical and performance properties:

Properties	
Specific Gravity	1.62 (13.5 lbs./gallon)
Viscosity	800,000 cps Brookfield RTV, TF spindle, 4 rpm 70° F.
Shear Strength (ASTM D-1002)	300 psi+ (7 day ambient cure)
Elongation @ break (ASTM D-412)	300% (7 day ambient cure)
Hardness Shore A (ASTM C-661)	50 – 55 (14 day ambient cure)
Tack free time (ASTM C-679)	35 minutes
Low temperature flex	Minus 20° F: PASS
Slump (sag) (ASTM C-639)	Zero slump
Shrinkage (ASTM D-2453)	No measurable shrinkage (14 cay cure)
Service temperature	-40° F to 200° F

2.08 INTERPLIES

A. Shall be Underwriters Laboratory approved and listed in the FM Global Approval Guide.

B. Shall be SBS 90 mil SS base sheet, tested in accordance with ASTM D 5147, as approved by field membrane manufacturer, or approved equal.

2.09 INSULATION

A. See specification Section Roof Board Insulation 07 22 16

2.10 FASTENERS AND PLATES

A. General: All fasteners and plates for the installation of insulation, and for the installation of the membrane, shall be supplied and warranted by the membrane manufacturer for the specific application.

B. Membrane attachment toggles, if required, shall be provided and warranted by the membrane manufacturer.

C. All fasteners and plates shall be FM Global approved corrosion resistant screws or anchors supplied and warranted by the membrane manufacturer. Fasteners shall be of a type and length recommended by the manufacturer for fastening the insulation and/or protection layer (through the existing roof in reroofing) to the structural roof deck.

2.11 FASTENERS

A. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide, and be as recommended by the fastener manufacturer for the specific application.

B. Fastener for Brick: Shall be one-fourth inch by two inches (1/4" x 2"), zinc with plated steel or stainless-steel nail, one-piece unit, flat head.

C. Fastener for Steel Deck: Shall be a #14 fastener, fluorocarbon coated, with CR-10 coating. A minimum .200 diameter shank and .250 diameter thread. To be used with round pressure plates or bar, and having a fluorocarbon CR-10 coating, when subjected to thirty (30) Kesternich cycles (DIN 50018) shows less than ten percent (10%) red rust which surpasses FM Global Approval Standard 4470. Fasteners, plates, and/or bars shall be listed in the FM Global Approval Guide.

D. Fastener for Lightweight Concrete Deck: Shall be a split shank, one-piece fastener, to be used with a two and three-fourths inch (2-3/4") bilateral metal plate, both G-90 galvanized, as manufactured by Olympic Fasteners, or approved equal. Fasteners and plates shall be listed in the FM Global Approval Guide.

2.12 BONDING ADHESIVE FOR FLASHING

A. Description: Adhesive is a bonding cement of synthetic rubber for adhering membranes to various substrates, produced by Ashland Chemical, or approved equal.

Typical Liquid Properties (Room Temperature)	
Color	Amber/Yellow
Base Product	Neoprene
Solids	25%
Specific Gravity	.87
Pounds/Gallon	7.25
Viscosity (CPS)	2500
Solvents	Ketone, Toluene, Aliphatic Hydrocarbon, Zylene
Estimated Coverage	
2 Sided Application	55/70 sq. ft. (2/2.5 mils dry)
DOT Label Required	Flammable Liquid
Code - 584661	

B. Handling: Contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

2.13 ASPHALT ROOF PRIMER

A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces.

Applicable Federal Specification	SS-A-701B
ASTM	D 41
Flash Point	105° F
Viscosity at 80° F (ASTM D 217)	50-60 K.U.
Weight per gallon	7.4 pounds
Drying time (to touch)	Min. 4 hours

2.14 CANT STRIP

A. Shall be wood fiber where used for non-structural purposes. Shall be treated solid wood where used for structural purposes meeting NRCA, FM Global and Underwriters Laboratory guidelines. If solid wood cant is used where insulation exists, cant is to be toe nailed into treated solid wood nailer the same height as insulation.

2.15 WOOD

A. All nailers, cants and wooden curbs shall be fire rated, treated lumber as required by NRCA, FM Global and Underwriters Laboratory guidelines.

2.16 TRIM STRIP

A. The trim strip shall have the following minimum properties.
   1. Six inch (6") wide non-reinforced 45 mil thermoplastic used for capping butted ends of rolls.
   2. The trim strip is seamed with the use of hot-air welding.

2.17 CORNERS

A. Inside and outside corners shall be supplied by the membrane manufacturer and shall be of the same base material as the roof membrane.

2.18 PIPE BANDS

A. Stainless steel bands with self-locking heads.

B. Tighten with hand tool for tension control and flush cut off.

2.19 PRE-MOLDED BOOTS

A. Non-reinforced thermoplastic tapered molds for various pipes, heat welded to field membrane and sealed at top with stainless steel pipe bands and seam sealer.

2.20 PITCH PAN SEALANT

A. Shall be one-part, self-leveling polyurethane sealant meeting Federal Specification No. TT-S-00230C, Type I, Class A, ASTM C 920, Type S, Grade P, Class 25, for use in new pitch pans.

2.21 PIPESTANDS (6" OR SMALLER - LESS THAN 9" OFF ROOF SURFACE)

A. Black, polycarbonate construction with stainless steel roller pin assembly suitable for gas lines and conduit set in finished roof assemblies, Model No. 24R, sized accordingly, as manufactured by Miro Industries, Inc.

2.22 BONDING ADHESIVE

A. Shall be bonding adhesive as recommended by roof manufacturer.

2.23 WALKWAY PAD

A. The walkway pad shall have the following minimum physical properties, and be applied with edges heat or solvent welded.

Property	Test Procedure	Physical Properties
Color		Gray
Size		36" wide x 60' long
Thickness	ASTM D 638	.080" nominal
Reinforcement		1000 Denier Polyester
Tear Strength	ASTM D 751	210 X 200 lbf
Puncture Resistance		96 lbs
Cold Resistance	ASTM D 1043	-40° C
Shore A Durometer		85
Hydrostatic Resistance		400 psi
Dimensional Stability	ASTM D 1240	≤ 1%
Ultraviolet Stability		12,000 hrs. Excellent

2.24 TERMINATION/PRESSURE BARS

A. Aluminum strip shall be extruded channel bar with a mill finish, width one inch (1"), thickness 0.100" ± .008", leg height one-fourth inch (1/4") top and bottom, leg angle ninety degrees (90°), for perimeter and curb anchorage, having predrilled holes six inches (6") on center, as manufactured by Olympic Fasteners, or approved equal.

2.25 T- JOINT COVERS

A. **Supplied by the membrane manufacturer** as a secondary covering to all T – Joints in the installation of thermoplastic roof systems consisting of waterproofing coverings equal to or greater than 60 mils in thickness.

2.26 ROOF PLAQUE

A. Contractor shall provide a sixteen inch by sixteen inch (16" x 16") metal plaque which shall contain the information listed below. Fasteners to attach plaque shall be stainless steel, short enough to not penetrate outer surface of hatch or door where mounted. Location of plaque to be determined by Project Manager.
   1. Project Manager name, phone number, contact person.
   2. School district phone number, contact person.
   3. School district emergency phone number.
   4. Contractor name, phone number, contact person.
   5. Subcontractor name, phone number, contact person.
   6. Roof Consultant, name, phone number, contact person.
   7. Roof system, warranty information.
   8. Roof Manufacturer, phone number, contact person.

2.27 VERTICAL WALL SHIMMING MATERIAL

A. Shall be one of the following unless otherwise accepted by Owner's representative: OSB, exterior grade plywood, gypsum core board or concrete core board. Proper selection of material is required to achieve FM Global and UL guidelines.

2.28 HIGH HEAT SELF ADHERED MEMBRANE

A. High Heat, self-adhering underlayment, a premium heavyweight adhered membrane. Minimum thickness of 30 mils.

2.29 OVERNIGHT SEAL

A. Hot applied asphalt bitumen shall be provided for the purpose of night sealing the roof system for asphalt applications.
B. Urethane sealant shall be provided for the purpose of night sealing the roof system for adhesive roof system applications.

2.30 DELIVERY AND STORAGE

A. All materials shall be delivered with appropriate carton and can labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

2.31 PRECAUTIONS

A. Some of the indicated materials are extremely flammable and/or toxic. Use precautions indicated on can and carton labels.

2.32 MISCELLANEOUS MATERIALS

A. Other materials shall be as specified or of the best grade for the proposed use as recommended by the manufacturer.

PART 3 - EXECUTION

3.01 REFERENCE

A. The manufacturer's Technical Specifications shall be considered a part of this specification and should be referred to for more specific application procedures and recommendations.

B. Application of materials shall be in strict accordance with the manufacturer's recommendations except where more stringent requirements are shown or specified. In the instance of a conflict between these specifications and those of the manufacturer, the more stringent specifications shall take precedence.

C. General Installation:
1. Protect adjacent areas with tarpaulin or other durable materials.
2. Contractor shall prevent overspray, and be responsible for parking lot areas and/or adjoining areas not part of this contract.
3. Contractor shall be responsible for sealing, as required, all openings that may allow bitumen migration or drippage, i.e. pitch dams, envelopes, and filler strips.
4. Prepare surfaces according to manufacturer's or applicator's published instructions. All metal that is to receive bitumen, or come in contact with bitumen or adhesive, shall be first primed with appropriate primer. Any prefinished sheet steel that is to

receive bitumen, or come in contact with bitumen or adhesive, shall be scored, scuffed or abraded prior to receiving primer.

5. Use cleaning materials or primers necessary to render an acceptable surface/substrate.
6. All surfaces/substrates shall be clean and dry prior to application of materials.
7. Prior to application of felts and membrane, all foreign matter, gravel, etc., shall be removed from the insulation and/or substrate. Gravel or debris between the insulation/substrate and plies is not acceptable.
8. Bitumen kettle shall have a visible thermometer and thermostatic control or some other means to provide positive monitoring of the bitumen temperature when it is heated in accordance with manufacturer's instructions.
9. Ambient temperature shall be 45° F and rising.
10. The maximum heating temperature of Type IV asphalt shall be 500° F.
11. The temperature of Type IV asphalt shall be approximately 430° F ± at the point of application or as recommended by the membrane manufacturer.
12. Maintain kettle and/or tanker temperature at least 25° F below the actual flash point of the bituminous materials used.
13. Never heat the bituminous materials at high temperatures for prolonged periods of time.
14. Do not allow bituminous materials to stand in luggers for long periods.
15. Circulate bituminous materials.
16. Insulate hot transport lines if required.
17. Wrinkles, buckles, kinks, and fishmouths within the field of the membrane are not acceptable when laying membrane.
18. Wrinkles, buckles, kinks and fishmouths within the 1.5-inches heat weld will be cut, removed and patched according manufacturer specifications
19. Do not heat weld faster with a higher blowing speed as wrinkles from ballooning will occur, set automatic seamer to prevent this from occurring.
20. Where deteriorated base flashing is removed, primed cant strips shall be installed at the intersection of the deck and the vertical surfaces. All flashings shall be mechanically top-fastened with a termination bar a minimum of six inches (6") on center at the top leading edge, and be a minimum of eight inches (8") in height from finished membrane.
21. Provide a water test of each roof section prior to substantial completion. The test should simulate rainfall of one inch (1") per hour minimum.
22. On slopes greater than one inch (1") in twelve inches (12"), refer to NRCA and/or manufacturer's guidelines for backnailing procedures and follow the more stringent guidelines for all specified materials.

3.02 SUBSTRATE PREPARATION

A. Sweep and power broom Existing: Sweep and bower broom to remove all loose granules, remove all dust, dirt, and debris. Substrate shall be smooth and free of debris, sharp edges, and other surface irregularities prior to work starting. Existing surface shall be leveled, blisters cut, all foreign particles removed prior to installation of approved recover board. Remove and replace all wet roof assembly materials as required to minimum of NRCA standards.

B. Repair daily all existing cap sheet membranes where damage has occurred from the sweeping process.

3.03 CATEGORY II (NON-FRIABLE) ASBESTOS CONTAINING MATERIALS (ACM) REMOVAL
NOTE: Asbestos removal procedures are required (if asbestos is present) while removal of ACM roof materials takes place. The following procedures are to be followed as a minimum:

A. Roofing contractors who perform asbestos roof tear-off shall use hand tools such as axes, picks, shovels or mechanical equipment such as a "roof warrior" that uses a reciprocating wedge to tear roofing materials. Breaking and/or slicing of material is permitted. Sanding, grinding or abrading during handling is not permitted.

B. Wrap all rooftop ducts, vents or exhaust openings with 6 mil poly and tape.

C. Provide an Asbestos Hazard Control Supervisor (competent person) to oversee demolition.

D. Ensure employees have received OSHA required training in asbestos removal and health hazards associated with exposure to airborne asbestos fibers.

E. Roof will be sufficiently wetted down before removal to prevent dust, using pump-up garden sprayer or water hose with spray nozzle.

F. Perform personal and area air monitoring for at least the first three (3) days of the project in accordance with 29 CFR 1910.1001. Monitoring shall be done by either: 1) in-house certified abatement personnel; or 2) certified asbestos monitoring personnel from a certified outside source.

G. Asbestos Warning signs and tape shall be posted in tear-off area.

H. Based on air monitoring results, the contractor MUST execute a Written Negative Exposure Assessment Determination and keep on file at the project site along with air monitoring results.

I. Use airtight chutes or mechanical means to lower ACM from the roof. The ACM must be wrapped in poly and removed daily. If ACM is NOT wrapped, the disposal container must be enclosed.

J. Disposal: Can be disposed of as construction debris at any approved landfill.

3.04 INSULATION

A. See specification Section Roof Board Insulation 07 22 16

3.05 MECHANICALLY ATTACHED RECOVER BOARD

A. After proper cleaning of existing granule cap sheet, specified recover board shall be mechanically attached to the existing metal roof deck as required to meet wind uplift. Contractor to provide fastening pattern recommended by manufacturer.

3.06 NAILERS

A. Wooden nailers shall be installed at gravel stops, drip edges, and expansion joints on

outside perimeter of building according to NRCA, Underwriters Laboratory and IBC guidelines.

B. All Construction: Nailers shall be the same height as the new recovery board being installed where required. Nailers shall be raised if necessary by anchoring an additional nailer of appropriate height to the existing nailer if the existing nailer is not to be replaced. Nailers shall be anchored to resist a pull-out force of one hundred seventy-five pounds (175#) per foot. Fasteners shall be no less than two (2) per nailer, and be spaced at three feet (3') on center maximum. Expansion joint nailers shall extend upward a minimum of eight inches (8") above finish roof height.

3.07 WOOD CANTS

A. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory and IBC guidelines.

3.08 APPLICATION OF PLY SHEETS

A. Recover Board shall be covered with one layer of SBS 90 mil SS base sheet adhered as follows:

B. All layers shall be solid mopped at the nominal rate of thirty pounds (30#) ± 20 percent per one hundred (100) square feet using asphalt Type III as required by slope, properly heated. Specified layers shall be applied in accordance with the manufacturer's recommendations and in accordance with general practices as set forth by the NRCA Roofing Manual.

3.09 HOT APPLIED FLEECE BACKED MEMBRANE

A. Adhered Application: Adhere membrane to acceptable substrate with hot asphalt applied at the rate specified by the manufacturer.
   1. The roof surface must be clean, dry and free of foreign material.
   2. Position sheets as indicated on approved shop drawings.
   3. Fold one end of the Elvaloy® sheet on top of itself until both ends meet. Apply hot asphalt to the prepared roof surface. The sheet can then be pulled and laid into the bonding material using care not to create any wrinkles.
   4. Carefully push into place from fold line to overlap, avoiding wrinkles and air pockets. Roll or broom membrane flat.
   5. Repeat procedure for other sheet half.
   6. Lap seams shall be done by lapping the two inch (2") selvedge edge over the non-selvedge edge of the previous roll. The selvedge edge seam shall be made with the heat gun method.
   7. Roll ends are butted together and capped with a six inch (6") wide trim strip. The trim strip is then seamed with the heat gun.
   8. Seam sealer shall be applied to all non-factory edges.

B. Lap Seaming Procedure: Overlap membrane for attachment method specified and hot-air welded with manufacturer's approved equipment.
   1. All surfaces to be weld shall be clean, dry and free of foreign material.
   2. All seams must then be checked with a needle probe and any voids repaired with the

heat gun.

3. Caulk all exposed cut edges with seam sealer.

3.10 FLASHING

A. Flash all penetrations, metal edge systems, walls, curbs, expansion joints, drains as shown on details and approved shop drawings with white reinforced Elvaloy® flashing membrane.
   1. Use prefabricated flashing accessories or components such as sealant pockets, premolded vent/pipe flashing.
   2. Mechanically fasten flashing at terminations according to approved details.
   3. Fastening membrane flashing through metal counterflashing is not acceptable.

B. Any lumber or shimming required for attachment or to make material flashing flush or level with offsets and/or transitions shall be incorporated in the flashing specifications.

3.11 BASE FLASHING (APPROXIMATELY 8" IN HEIGHT MINIMUM)

A. Base flashings shall be installed using the flashing membrane, with length of run not to exceed twenty linear feet (20').

B. Wooden nailers or curbs shall be installed at all edges and openings in the roof, mechanically fastened to the deck.

C. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.

D. The roofing field membrane shall extend up over and two inches (2") above the top of cant strips at all vertical intersections or out to the roof's edge.

E. All existing substrates receiving flashing membrane shall be clean and primed with primer, prior to application as required.

F. All flashings shall be mechanically fastened with a termination bar a maximum of six inches (6") on center, be a maximum of eight inches (8") above finished roof height, extend a minimum of four inches (4") onto the field of horizontal roof membrane, and not exceed twenty linear feet (20') of run in length.

G. After proper termination of the base flashing at a minimum eight inch (8") height (or maximum eighteen inch (18") height), a saw cut reglet with counterflashing shall be installed according to NRCA and SMACNA guidelines.

H. All vertical flashing lap seams of the flashing membrane shall be hot-air welded.

I. All flashing membrane shall be adhered with flashing bonding adhesive to the vertical substrate and hot-air welded to the field of roof membrane; hot-air weld vertical laps.

J. Flashing laps shall be minimum two inch (2") width, no maximum. Hot-air weld of flashing lap shall be minimum two inch (2") width, no maximum.

K. Hot-Air Welding of Flashing Laps:
1. When using a hand-held hot-air welder, the seams should be pressed together using a hand-held roller. The speed and temperature settings of the welding equipment can be affected by the weather conditions at the site of application, therefore, these parameters should be set by trial and error using two (2) pieces of the flashing membrane. Minimum width of hot-air weld two inches (2"), no maximum.
2. Lay the laps together and apply pressure to the welded seam to ensure full adhesion.
3. Allow the seams to set fully, and probe the entire length for voids. Reseam voids immediately with a hot-air gun and roller.

L. All hot-air welded seams/laps shall be tested daily with a probe for integrity, no variance.

3.12 VERTICAL WALL FLASHING (FOR USE APPROXIMATELY 8-18" ABOVE THE FINISHED ROOF LINE AND EXTENDING UPWARD)

A. Flashing membrane shall be installed on the vertical beginning a minimum of eight inches (8") above the finished roof line (where the base flashing is terminated), with length of run not to exceed twenty feet (20'). Flashing shall be installed in strict accordance with the manufacturer's recommendations.

B. The termination bar used to terminate the minimum eight inch (8") high base flashing shall be used to terminate the lower edge of the vertical flashing. This will cause the termination bar to be buried at the termination point. Care should be taken to ensure the top edge of the base flashing and bottom edge of the vertical flashing are both secured.

C. All existing substrates receiving flashing membrane shall be clean and primed with asphalt primer, prior to application.

D. All substrates receiving welded-seam flashing membrane shall be clean and primed with primer, prior to application when applicable.

E. The vertical wall flashing membrane shall be set in flashing bonding adhesive according to manufacturer's guidelines.

F. All vertical flashing lap seams of the flashing membrane shall be hot-air welded.

G. Flashing laps shall be minimum two inch (2") width, no maximum. Hot-air weld of flashing lap shall be minimum two inch (2") width, no maximum.

H. Immediately following the laying of the flashing membrane, it shall be pressed or rolled in the width direction of the membrane. This will prevent excessive entrapment of air beneath the membrane. The pressing or rolling shall be in the width direction and with the laps so as not to buck the laps.

I. Any flashing extending further than eighteen inches (18") up onto a vertical surface shall be installed using the strapped method and must be fastened with a termination bar or installed up and over the parapet wall and fastened to the nailer on the outside of the wall.

J. The flashing membrane shall be run up the wall in sheet widths, run under the coping cap

and be terminated on the outside of the wall six inches (6") on center; then the coping cap shall be reset. All side laps are to be hot-air welded.

K. Hot-air Welding Laps:
1. When using a hand-held hot-air welder, the seams should be pressed together using a hand-held roller. The speed and temperature settings of the welding equipment can be affected by the weather conditions at the site of application, therefore, these parameters should be set by the contractor by using two (2) pieces of flashing membrane. Minimum width of hot-air weld shall be two inches (2").
2. Lay the laps together and apply pressure to the welded seam to ensure full adhesion.
3. Allow the seams to set fully, and probe the entire length for voids. Reseam voids immediately with a hot-air gun and roller.

L. All hot-air welded seams/laps shall be tested daily with a probe for integrity, no variance.

M. Any lumber or shimming required for attachment or to make material flashing flush or level with offsets and/or transitions shall be incorporated in the flashing specifications.

3.13 PERIMETER FASTENING

A. Wood nailers are required for perimeter gravel stops or drip edges. Field membrane and all plies shall be mechanically fastened to nailer on twelve inch (12") centers maximum.

3.14 EDGING FLASHINGS

A. An NRCA-approved gravel stop/fascia system shall be installed in strict accordance with published instructions to meet local code.

3.15 ROOF DRAINS

A. Inspect and test drain and drain lines prior to start of work in contact area. Open if blocked or clogged and repair/replace all broken, missing drain components and lines as required. Verify in writing that all drains and lines are free flowing and watertight prior to substantial completion. Comply with local plumbing codes.

B. Insert Drains: Install new drain inserts in all existing drains with permanent gaskets between insert and drain wall to prevent backflow of water and leakage if approved by project manager and owner.

C. Replacement Drains: Sized to match existing drain system. Install watertight to existing lines. Follow drain manufacturer's installation requirements.

3.16 WALKWAY PADS

A. Adhere and heat weld walkway pads where shown on drawings or where required to provide protected pathways from rooftop access points to mechanical or other equipment requiring rooftop maintenance.

3.17 CLEANING

A. Clean exposed surfaces of excess cement, adhesive, sealants, mortar and paint associated with the new work.

B. Clean work area of excess roofing materials and installation debris daily.

C. Repair or replace defaced or disfigured finishes caused by the work.

3.18 MEMBRANE CLEANING

A. After all membrane has been installed, it shall be cleaned with a cleaning agent compatible with the membrane to return the membrane to like new appearance.

3.19 PROTECTION

A. Protect all building surfaces against damage from roofing work.

B. Where traffic must continue over finished, installed roofing system, protect membrane, underlayment accessories and finishes from damage.

3.20 MEMBRANE PROTECTION

A. Where equipment pads, wood sleepers, or walkway slabs are to be installed over the roofing membrane, an additional layer of the roofing membrane shall be installed between the roofing membrane and the pad, sleeper, or slab. Due caution shall be exercised to prevent roofing membrane damage during placement. Where required, membrane shall be welded to field membrane to prevent slippage.

3.21 PIPING/CONDUIT

A. Piping/conduit shall be raised to NRCA recommended heights, and new supports furnished. Permanent supports shall be installed upon pads approved by membrane manufacturer. Coordinate work with Owner's representative.

B. All gas lines shall be painted with a commercial grade yellow paint.

C. All other piping and conduits shall be coated with specified aluminum coating.

3.22 PIPE/EQUIPMENT SUPPORTS

A. Existing pipe/equipment supports shall be removed and replaced with new neoprene base pipe support. Pipe supports shall be placed approximately ten feet (10') on center. New pipe supports shall be set on a double layer of membrane, and attached to the pipe with suitable strapping. Double layer of membrane shall be adhered to the roof surface.

3.23 ROOF PLAQUE

A. Metal plaque shall be installed on the underside of each roof hatch or on the inside of the maintenance room door. Location of plaque to be determined by Project Manager.

B. Plaque shall be fastened with stainless steel screws that are short enough to not penetrate outer surface of hatch or door where mounted.

3.24 OVERNIGHT SEAL

A. Shall be performed according to accepted roofing practice as outlined in the NRCA Roofing Manual, SPRI and membrane manufacturer's recommended procedure.

B. The roofing membrane shall be sealed to the roof deck or existing roof at the end of the day or at the onset of inclement weather to prevent water from flowing into the completed roofing system. Temporary seals shall be removed upon resumption of work.

3.25 COPING JOINTS, REGLET JOINTS, CAULK JOINTS, WALL JOINTS, AND WALL CRACKS ABOVE THE ROOF LINE

A. All reglet and coping joints shall be raked clean of loose materials and debris, and sealed with caulk sealant. Sealant shall be properly installed and tooled in a workmanlike manner to ensure permanent seal.

B. All open coping and masonry terminations and intersections shall be cleaned out and sealed with backer rod and caulk sealant. Backer rod shall be minimum one and one-half (1-1/2) times the width of the opening to be sealed. Caulk sealant thickness shall be minimum of one-half (1/2) of the width of the opening to be sealed.

C. Clean joint surfaces immediately before installation of gaskets, sealant or caulking compound. Remove dirt, insecure coatings, existing sealant, moisture, and other substances which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

D. Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

E. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.

F. Install sealant backer rod for liquid-applied sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for application indicated.

G. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint to bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal

joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.

H. For normal moving joints to be sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to fifty percent (50%) of joint width, but neither more than one-half inch (1/2") deep nor less than one-fourth inch (1/4") deep.

3.26 SELF ADHERD MEMBRANE

A. To all eave, rake, ridge, rise wall applications and all projections, equipment and miscellaneous flashing applications, provide one (1) full sheet of the respective ice/watershield in accordance with the manufacturer's specific recommendations and application procedures. All eave applications shall extend a minimum of three feet (3') upslope beyond the interior wall, and all valley applications shall be a minimum of two (2) plies, with one (1) full sheet laminated to the deck, and one-half (1/2) sheet adhered to the base ply. All vertical transitions shall extend up the vertical surface a minimum of twelve inches (12"). All fiberglass underlayment applications shall extend a minimum of nine inches (9") onto the self-adhered membrane, no exceptions.

END OF SECTION 07 53 50

SECTION 07 56 00
EPOXY FLUID APPLIED COATING

PART 1 – GENERAL

1.01 SCOPE OF WORK

A. The work covered in this section of the specification consists of furnishing all materials, labor, equipment, services, and accessories to install epoxy coating on existing roofs identified on the Drawings.

1.02 GENERAL

A. All materials shall be furnished, specified, or approved in writing by the original manufacturer.

B. Samples of all materials used on the project, which are not supplied by the coating manufacturer, shall be submitted to the coating manufacturer for written approval prior to work starting.

C. Substitution of Basis of Design materials must be pre-approved.

D. All materials used on the project shall be asbestos free.

1.03 QUALITY CONTROL

A. All applicable requirements of the material manufacturer's specification and application guide are to be considered hereby incorporated by this reference. Any conflicts or ambiguities between these project documents, Manufacturer's requirements, and any other documents pertaining to this project shall be brought to the attention of Manufacturer's Representative and the Owner's Representative before the proposal is submitted. In the event that such questions are not resolved before proposal submission, the Contractor will be considered unacceptable and the proposal will be disqualified.

B. Contractor Requirements
   1. The Contractor bidding work to these specifications shall be approved by the Materials Manufacturer as an approved applicator prior to submitting this proposal.
   2. Prior to the award of the contract, the Contractor shall furnish to the Owner satisfaction, evidence of his status as an approved applicator, a list of successfully completed projects of similar scope, and such financial information as requested.

C. Primary Roofing Materials Manufacturer Requirements
   1. Manufacturer shall have been engaged in the production of roofing and waterproofing materials for minimum of 15 years.
   2. Materials Manufacturer shall be an associate member in good standing of the National Roofing Contractors Association.
   3. Materials Manufacturer, at the Owner's representative's request may make available a Technical Representative who will monitor the procedures used by the Contractor to assure adherence to manufacturer's recommended application procedures.

4. Materials Manufacturer's representative shall advise the Contractor of any materials, detail of the work, or work methods that do not comply with these specifications and any accompanying drawings. If corrections are not completed, the Technical Representative shall notify the Owner's representative of the items which do not comply.

1.04 SUBMITTALS

A. At least ten (10) days before the preconstruction meeting, the Contractor shall submit to the Owner's representative, copies of any applicable specification sheets, drawings of flashing details, and material data sheets on all materials, Performance and Payment Bonds and Certificates of Insurance. The exact specification to be used and any modifications to the details shall be clearly marked on the submittals of which sufficient copies shall be furnished to provide for the Owner's needs, an approved copy for the Technical Representative, and one approved copy for the Contractor's files.

B. Submit a sample copy of the Contractor's required ten (10) year warranty which shall cover any and all defects in workmanship and materials. All exclusions shall be highlighted in the sample warranty to notify the owner of such.

C. Submit a sample copy of the Material Manufacturer's warranty providing for ten (10) years full coverage for the specified roofing system and labor.

1.05 PROJECT MEETINGS

A. Pre-construction Meetings
   1. At least five (5) days before the scheduled start of work, the Owner/Engineer/Consultant shall convene a meeting to review the work to be done. The meeting shall be held at a mutually convenient location, and shall include a tour of the roof.
   2. Authorized representatives of the Owner, the Engineer/Consultant, the Contractor, the Materials Manufacturer's and the Contractor's Foreman shall be in attendance at the preconstruction meeting.
   3. The agenda for the meeting shall include:
      a. A review of the submittals.
      b. Distribution of approved submittals.
      c. A walkover inspection of the roof.
      d. Establishment of a schedule for the work.
      e. Selection of staging and storage locations.
      f. Verification of acceptable substrate and positive roof drainage.

B. Final Inspection
   1. Following the completion of the work, a final inspection shall be scheduled with the participants identified in 1.05.A.2.
   2. Any uncompleted work shall be noted on a punch list. All items on the punch list shall be completed before final payment.

1.06 SITE CONDITIONS

A. No work shall be performed that will reduce the degree of protection from weather by the existing roof. Removed areas of the roof shall have either new roofing or weather-tight temporary roofing applied to provide continuous protection for the building.

B. All work must be left in a watertight condition at the end of each workday.

C. The Contractor shall comply with all reasonably applicable requirements of the Owner's safety and security requirements and with all applicable Federal, State, Local and City regulations, laws, and ordinances and including OSHA fall protection requirements.

D. The Contractor shall provide coverings to protect building and ground surfaces in all areas in which work is being performed. The type of covering will be appropriate to the type of work being performed and the surfaces to be protected in that location. Protection requirements shall include those surfaces over or past which materials, including pumped adhesives, are being transported.

E. The roofing system shall not be installed over existing decking or substrate components which are deteriorated in such a way as to constitute any hazard to the performance of the new roof covering.

F. The surface of the deck must be clean and dry, properly secured, and free of defects.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Application of roofing materials shall not be performed when weather conditions interfere with good application practices. Materials shall not be placed on damp surfaces or in the presence of rain or excessive high humidity. Any materials applied under such conditions to protect building surfaces shall be removed before application of the roof system continues and may not be incorporated into the finished roof.

B. Ambient temperature shall be 40° F and rising during the application of the specified roofing materials/system. For specific requirements for cold weather roofing, contact the Materials Manufacturer.

C. Installed materials shall be protected from repetitive traffic with plywood or other rigid materials. Unfinished perimeters of the roof system shall be sealed with temporary water cut-offs.

1.08 APPLICATION EQUIPMENT

A. Equipment used to prepare and install coating materials shall be as required by Materials Manufacturer.

B. Equipment used on the roof, shall be in good repair and maintained as needed to properly apply the system.

C. Equipment loads shall be adjusted as necessary to prevent overloading of the structure or damage to materials already placed.

D. Fire extinguishers and all safety-related equipment shall be provided, used, and maintained to comply with all applicable OSHA requirements and local codes and ordinances.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Delivery of Materials: All materials delivered to the job site shall be new, dry, and undamaged. Containers shall be unopened and undamaged. All manufacturers' labels shall be intact and contain the product and manufacturers' names, run code of manufacture and testing approvals.

B. Storage of Materials:
1. Discard containers which may have been flattened, creased, or otherwise damaged. Place materials on pallets. Palletized materials shall not be stacked.
2. Materials shall be stored at temperatures between 40° F and 100° F.
3. Materials stored on the roof surface shall be covered with weatherproof coverings and dispersed to avoid concentrated loading, with any larger concentrations set over major structural members.

C. Shelf Life: Use within manufacturer's recommended shelf life.

1.10 WARRANTY

A. Upon project completion and acceptance by the Owner's representative and Materials Manufacturer, executed copies of the submitted Manufacturer's ten (10) year System warranty including labor and materials. A Contractor's five (5) year labor warranties shall be furnished promptly. Final payment will not be made until warranties have been received by the Owner.

B. A list containing the names of the Roofing Contractor's Service Manager, Superintendent, and Project Manager shall be furnished which will also contain contact telephone numbers and the Contractor's current mailing address.

PART 2 – PRODUCTS

2.01 SYSTEM REQUIREMENTS

A. Comply with manufacturer's product data, including product technical bulletins and product guide specification instructions.

2.02 EPOXY COATING

A. Coating system shall be a fluid applied, cold process, epoxy coating product designed for the specific application over metal roofs and fasteners. Surface preparation, panel seam and fastener repair, and a coating application shall be included and performed as part of the system.

B. Basis of Design: NovaTuff RC-100 Flexible Epoxy Roof Coating.

NovaTuff RC-100 Flexible Epoxy Roof Coating Properties:

ASTMC-518 Thermal Conductivity	(Btu)(in)/(h)(ft ^{2})(°F)	1.39
ASTM G-S18 Thermal Conductance	(Btu)/ (h)(ft ^{2})(°F)	2.61
ASTM C-518 Thermal Resistivity	(°F)(ft2)(h)/Btu/in	0.72
ASTM C-518 Thermal Resistance	(°F)(ft2)(h)/Btu	0.38
ASTM B-117 Salt-Fog Testing for 500 Hrs.	Pass/fail	Pass
ASTMD-92 Flash Point	Degrees F 125.0	
ASTM D-1644 A Percent Solids Weight	Percent Solids	86.7
ASTM D-1475 Density and Adhesion	Density (lbs./Gallon)	11.8
	Adhesion (#/ in ^{2})	210
ASTM D-638 Tensile Strength	psi	1393
ASTM D-638 Elongation	%	210
ASTM D-696 Thermal Expansion	coefficients of linear expansion in. /in.°F	20.7X
ASTM E-96 Water Vapor Transmission	Permeance (in Perms.)	0.749
ASTM E-108 Class "A" Fire rating	STD.790 / 1400 +/-50°F	Pass
ASTM C 1549 Solar Reflectance	Reflectance	0.870
ASTM C 1371-04a Emittance	Emissivity	0.88

2.03 EPOXY CAULK

A. Acrylic flashing compound consisting of a highly concentrated, acrylic resinous plastic emulsion with inert mineral pigments, designed to be used with system reinforcing fabric to form high strength, reinforced, flashings at deck and wall transitions as well as edges, curbs, pipes, skylights, panel ends and side lap seam flashings. Brush consistency.

B. Basis of Design: NovaTuff C-300 Epoxy Caulking Compound.

2.04 CLEANER/PRE-PRIME

A. Cleaner for application over metal surfaces including details, flashings, and penetrations and removal of surface rust, prior to application of RC-100 Flexible Roof Coating.

B. Basis of Design: NovaTuff P-525 Pre-Prime.

2.05 FABRIC REINFORCEMENT

A. Reinforcing fabric specifically designed to be used with flashing adhesives or finish coats to form high strength, reinforced membranes at deck, wall transitions as well as penetrations, edges, curbs, pipes, skylights, vertical and horizontal seams, and other stress points. Fabric shall be manufactured or cut to width needed for project applications.

B. Basis of Design: NovaTuff Fabric

2.06 RUST INHIBITOR/CONVERTER

A. Rust inhibitor/converter to be applied over significant rusted areas still evident on the metal substrate after cleanup and treatment with system NovaTuff P-525 Pre-Prime.

B. Rust inhibitor/converter shall be acceptable to coating system manufacturer.

2.07 FASTENERS

A. Same as originally installed on structure, increased one or more outside diameter as required for project conditions to replace loose or missing fasteners.

2.08 SHEET METAL REQUIREMENTS

A. General: Replace existing defective sheet metal components with matching profiles and like type and gauge.

B. Brake shape materials shall be fabricated to conform to SMACNA standards.

PART 3 – EXECUTION

3.01 GENERAL

A. Examine substrates to receive new roof coating. Do not proceed with installation of the epoxy roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer.

B. Preparation of the substrate is the responsibility of the Installer. Installer shall address and correct all of the following:
1. Treatment of excessive gaps between panels
2. Installation of sheet metal crickets
3. Treatment of ponding water areas
4. Repair of dented/damaged panels
5. Retightening and replacement of fasteners
6. Thorough cleaning/removal of existing paints and coatings
7. Treatment of rust areas
8. Treatment of residual asphalt

C. Treatment of Excessive Gaps: All existing large or excessive gaps of roof panels, fascia, rake or eave must be closed or made flush with self-drilling fasteners as approved by the manufacturer.

D. Fasteners: All fasteners of roof panels and flashing must be retightened, secured or replaced with larger, as required. All stripped fasteners must be replaced with larger diameter fasteners, and the area resecured by adding a new fastener next to the one which was stripped. All missing fasteners must be replaced.

E. Treatment of Rust Areas: All rust areas must be treated with rust inhibitor to prevent further deterioration of the metal deck. Prior to rust inhibitor application, remove all loose, flaking or powdery rust by wire-brushing if it has not been removed during cleaning and pressure-washing. All rust shall be completely covered by the rust inhibitor. Only rusted

areas shall be addressed with the product. Installer must adhere to product safety requirements.

F. Protect all adjacent surfaces not designed to receive NovaTuff roofing product.

3.02 REMOVAL OF EXISTING MATERIALS, INSPECTION, AND PREPARATION OF SURFACES

A. All existing surface contaminates such as asphaltic mastics, peel and stick membranes or other roofing materials shall be removed to expose the underlying surface to which new materials are to be applied. Surfaces to receive roofing shall be inspected before the application of any new materials. Decks and surface conditions shall conform to requirements of the Materials Manufacturer.

B. Clean and prepare all surfaces to receive NovaTuff roofing product by removing all loose flaking particles, grease and other foreign debris with the use of a stiff bristle push broom and a minimum of 3000 psi power wash.

C. Clean all metal surfaces, including details, flashing and penetrations with TSP, and all other bare metal surfaces to which NovaTuff will be applied with **NovaTuff P-525 Pre-Prime.** Pressure-wash to complete the cleaning process. Heavy rust or scale may require more than one cleaning and/or use of a rust converter. **NovaTuff P-525** solution and most similar cleaners will prevent the re-occurrence of flash rust for a period of up to 18 hours. All metal surfaces treated with the **NovaTuff P-525** solution or similar cleaner should be coated with NovaTuff within this period to ensure proper bonding.

D. The methods used to remove the existing materials shall not cause preventable damage to the other building components. Where removal will permit excessive dust or debris to enter habitable spaces within the building, interior protection against such debris will be provided by the contractor. Mechanical fasteners that are loose shall be removed and new larger O.D. fasteners installed. Missing fasteners shall have new installed with size necessary to draw any loose flashings tight.

E. Removed materials shall be conveyed to ground collection points by means of containers or enclosed chutes. Ground collection points shall be cleaned regularly throughout the day of any spilled debris.

F. All surfaces to receive roofing or flashing materials shall be smooth, cleaned by power washing and rinsed, dry and in good repair. The surface to receive the roof covering shall provide for drainage of rainwater to edges, roof drains, or scuppers. Any exceptions to these requirements or variations to applicable building codes shall be noted in writing before work is undertaken.

G. Deteriorated surfaces to receive roofing or flashing shall be either repaired or replaced by the Contractor. Replace any deteriorated panels with like size, style and type. Excessive rust which cannot be removed and primed with rust inhibitor is not acceptable as a coatable surface. Such panels should be removed and replaced in kind.

H. Surfaces displaying any algae or other organic growth must be cleaned with bleach and water solution and thoroughly rinsed before coating.

I. Remove roof top units and other equipment without a curb which does not provide a minimum two feet (2 ft.) clearance above the roof surface to permit application below the equipment.

J. **The Materials Manufacturer's Technical Services Department shall be provided with sufficient advance notice to provide an opportunity to inspect the exposed surfaces if so desired, since a warranty is required.**

3.03 APPLICATION OF ROOFING MATERIALS

A. Apply NovaTuff C-300 Caulking Compound trowel-grade to all fasteners.

B. Detail NovaTuff RC-100 and fabric components around all penetrations. Apply a minimum of six inches up penetration and six inches out onto the roof surface. Apply with brush at the rate of 1½ gallons per 100 square feet, lay fabric into wet NovaTuff RC-100 and saturate top with additional coating. Overlap details onto the existing roofing system three (3) times the diameter of pipe penetrations or a minimum of 10 inches to all sides.

C. Using twelve (12) inch wide fabric strips and NovaTuff RC-100 seal all horizontal laps. Apply with brush at the rate of 1-1/2 gallon per 100 square feet, lay fabric into wet NovaTuff RC-100 and saturate top with an additional coat at the rate of 1-1/2 gallon per 100 square feet. The NovaTuff RC-100 and fabric components must be centered on panel laps.

D. Check all vertical seams. If there is no visible deformation present, they do not need to be sealed with fabric. If gaps or deformation of seam are present, seal those areas with the same procedures as for the horizontal laps.

E. Top Coat - Starting at the lowest point, apply NovaTuff RC-100 at the rate of 1 gal per 100 square feet (16 wet mils), taking care to maintain a uniform thickness over entire roof surface. For all vertical surfaces material should be applied a minimum of ten (10) inches up the vertical surface above the horizontal. In all cases, continue the NovaTuff RC-100 beyond any underlying NovaTuff C-300 caulking compound or existing underlying coating for at least four (4) inches.

F. Condensate drain lines on rooftop air conditioners must be plumbed to the nearest roof drain or scupper. Water from these units must not be allowed to drip on the coated roof surface.

G. Check NovaTuff for correct thickness in a grid pattern every 400 sq. ft. with wet mil gauge to ensure uniform thickness.

END OF SECTION 07 56 00

SECTION 07 62 00
SHEET METAL AND MISCELLANEOUS ACCESSORIES FOR SINGLE-PLY ROOF SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. All sheet metal components for moisture protection.
2. Related accessories.

B. Related Sections include the following:
1. Section 04 05 23 – Through-Wall Flashing System
2. Section 06 10 53 – Miscellaneous Rough Carpentry
3. Section 07 22 16 – Roof Board Insulation
4. Section 07 41 13 – Metal R-Panel Replacement
5. Section 07 41 13.1 – Standing Seam Metal Panels
6. Section 07 53 50 – Adhered Multi-ply Roof System Overlay
7. Section 07 54 19 – Multi-ply PVC Roof System
8. Section 07 62 13 – Gutters and Downspouts
9. Section 07 72 00 – Roof Accessories
10. Section 07 92 00 – Sealants and Caulking
11. Section 09 91 00 – Painting

1.02 SUBMITTALS

A. Product Data:
1. Submit shop drawings, product data and mockups of all sheet metal.

1.03 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers in satisfactory use in similar service for five (5) years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

B. Reference Standards: Applicable portions of ASCE, SMACNA, ASTM and NAAMM publications.

1.04 WARRANTIES

A. Manufacturer's Product Warranty: Submit manufacturer's standard limited product warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which Sunrise and the Project Manager may have under the contract documents. Failure is defined to include product failure which leads to interruption of a watertight installation. Correction may include repair or replacement of failed product.

B. Contractor's Warranty Period: For roofing flashing and sheet metal, provide a written warranty which shall warrant work to be free of leaks and defects in materials and workmanship for five (5) years, starting from date of substantial completion.

C. Defects of the sheet metal occurring during the warranty period shall be promptly corrected by the Contractor, and defects of the roofing shall be promptly corrected by the manufacturer at no additional cost to Sunrise. Upon notification from Sunrise or the Project Manager that evidence of a defect exists, the responsible party shall immediately inform the Project Manager of the date on which corrective work will be scheduled, and shall notify the Project Manager when the corrective work has been completed.

PART 2 - PRODUCTS

2.01 SHEET METAL MATERIAL

A. Stainless-steel for use as counter flashings

B. Stainless-steel for all pitch pans and goose neck covers.

C. Single-ply Cladded Metal: Shall be G-90 galvanized steel with 25 mil Single-ply membrane lamination; width shall be four feet (4'), length shall be eight feet (8') or ten feet (10').

D. Hot-dipped Galvanized Steel for use as continuous clips: Minimum 22-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 525.

E. Prefinished Galvanized Sheet Steel (where visible from the ground): Shall be 24-gauge flat stock, prefinished with Kynar finish meeting ASTM A 446, forty-five and one-half inches to forty-eight inches width by one hundred twenty inches in length (45-1/2" - 48" x 120") for use as new metal edge gravel guard, downspouts, gutters, coping and miscellaneous metal.

F. Stainless Steel: QQ-S-766, Class 301, 302, 304, or 316; or ASTM A 167, Type 301, 302, 304, or 316; form and condition most suitable for the purpose.

G. Aluminum and Aluminum Alloy Plate and Sheet: QQ-A-250; form, alloy, and temper shall be that most suitable for the purpose.

H. Sheet Lead: QQ-L-201, Grade B.

I. All existing sheet metal shall be replaced with new metal of like gauge and type, or as specified on drawings.

J. All prefinished metal color shall be as selected by Owner/Architect from manufacturer's full range of colors, including metallics.

2.02 FASTENERS

A. Fasteners shall be same metal as flashing/sheet metal, or other non-corrosive metal as recommended by sheet manufacturer for the specific application. Match finish of exposed heads with material being fastened.

B. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide.

C. Fastener for Brick: Shall be one-fourth inch by two inches (1/4" x 2"), zinc with plated steel or stainless-steel nail, one-piece unit, flat head.

D. Screws: Self-taping sheet metal type with neoprene washer, as appropriate.

E. Pop Rivets: Full stainless-steel Series 42 or 44, as appropriate.

F. Continuous Clip: Concealed hold-down clip type; of same materials as coping, gravel guard, sized to suit application. Use a continuous clip, minimum 22-gauge G-90 galvanized.

2.03 RELATED MATERIAL

A. Sealant (for Sheet Metal): One-component polyurethane, conforming to requirements of FS TT-S-230C, non-staining and non-bleeding.

B. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size, and gauge required for performance.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, substrates are smooth and clean and nailing strips located.

B. Verify membrane termination and base flashings are in place, sealed and secure.

C. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Field measure site conditions prior to fabricating work. Provide all shop drawings and mock-ups one month prior to installation to the Project Manager for approval.

B. Install starter and edge strips and cleats before starting installation.

3.03. FABRICATION - GENERAL

A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

B. Fabricate gravel stops/fascia, gutters/downspouts, counterflashings, expansion joints, and copings with new galvanized sheet metal as specified. Fabricate gravel guard and fascia to size and dimensions as indicated on the drawings. Fabricate light metal coping, gutters and downspouts as indicated.

C. Fabricate pitch pans with Single-ply cladded metal as specified.

D. Form sheet metal on bending brake.

E. Shape, trim and hand seam metal on bench insofar as practicable.

F. Form materials with straight lines, sharp angles and smooth curves.

G. Fold back edges on concealed side of exposed edge to form hem (1/2" minimum).

H. Weld or solder joints on parts that are to be permanently and rigidly assembled.

I. Limit single-piece lengths to ten feet (10').

J. Fabricate corner pieces with eighteen-inch (18") extensions, metered and sealed by forming as one piece.

K. All existing metal rooftop projections shall be replaced. New rooftop projection details shall be as recommended in NRCA or SMACNA handbooks. All rooftop projections shall be cleaned, all joints sealed, and painted with a rust inhibitive paint.

L. All sheet metal shall be sealed and watertight.

M. Metal work should be secured so as to prevent damage from buckling or wind. Where clips are shown, these are to be continuous.

N. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges are to be seamed, form seams, and solder.

O. Expansion Provisions: Form expansion joints of intermeshing hooked flanges, not less than one inch (1") deep, filled with mastic sealant (concealed within joints).

P. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards.

Q. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

3.04 INSTALLATION

A. General: All Sheet metal applications shall:

Meet or exceed all ANSI/SPRI ES-1 APPLICATIONS FOR THE REGION OF THIS PROJECT.

C. Single-ply cladded metal shall be fabricated as needed; follow these specifications and standard sheet metal practice for attachment to roof details.

D. Edge Closure/Fascia:
1. Shall be installed with expansion joints, ten feet (10') on center, one-fourth inch (1/4") expansion leeway, with a cover plate.
2. Secure metal flashings per specifications.
3. Lock seams and end joints.
4. Form sections identical to profiles as shown or approved similar, to match existing building.
5. Fabricate corner pieces with minimum eighteen-inch (18"), maximum forty-eight-inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
6. Hem exposed edges one-half inch (1/2") minimum.
7. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.
8. Integrate flashing in a manner consistent with detailing.
9. Provide and install continuous clip around perimeter.
10. Shall be fabricated in accordance with all SMACNA provisions.

E. Coping:
1. Remove existing and replace with new pre-manufactured metal coping as required for a permanent watertight installation.
2. All coping shall be pre-manufactured to include cover plate and low-profile standing metal seam to meet ES-1 requirements.
3. Shall be minimum 24-gauge prefinished aluminum Kynar installed in ten-foot (10') sections maximum.
4. Vertical fascia shall extend minimum four inches (4") and extend over the fascia of the mansard.
5. Secure metal flashings per specifications.
6. Lock seams and end joints.
7. Form sections identical to profiles as shown or approved similar, to match existing building.
8. Fabricate corner pieces with minimum eighteen-inch (18"), maximum forty-eight-inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
9. Hem exposed edges three-fourths inch (3/4") minimum.
10. Integrate flashing in a manner consistent with detailing.
11. Provide and install continuous clip, minimum .22-gauge.
12. Apply counterflashing at horizontal juncture of coping metal to exterior vertical wall.

13. Shall be fabricated in accordance with all SMACNA provisions.
14. Install bead of sealant at metal edge juncture at exterior wall surface.

F. Counterflashing: Remove existing and replace with new metal counterflashing as required for a permanent watertight installation.

3.05 FINISH

A. Damaged or exposed surfaces to be provided with a factory applied fluorocarbon Kynar finish meeting ASTM A 446 and AAMA specification 605.2 for high performance coating.

END OF SECTION 07 62 00

SECTION 07 62 13
GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Precoated galvanized steel gutters, downspouts, scuppers, brackets, spacers, fasteners, stiffeners and caps.
2. Precast concrete splash blocks.

1.02 REFERENCES

A. American Society for Testing and Materials:
1. ASTM A 48 Grey Iron Castings.
2. ASTM A 167 Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
3. ASTM A 361 Sheet Steel, Zinc-Coated (Galvanized) by Hot-Dip Process for Roofing and Siding.
4. ASTM A 446 Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
5. ASTM B 32 Solder Metal.
6. ASTM B 209 Aluminum and Aluminum Alloy Sheet and Plate.

B. Federal Specifications: FS TT-C-494 – Coating Compound, Bituminous, Solvent Type, Acid Resistant.

C. SMACNA – Architectural Sheet Metal Manual.

1.03 SUBMITTALS

A. Product Data: Provide technical data, installation instructions, and general recommendations for each specified sheet material and fabricated product.

B. Shop Drawings: Showing layout, profiles, jointing methods, fastening details, locations, and installation details.

C. Samples: Submit six inch (6") long samples of factory-fabricated products illustrating component design, finish, color and configuration.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Five years documented experience installing sheet metal systems.

B. Regulatory Requirements: Comply with applicable code for size and method or rain water discharge. Comply with SMACNA Manual for sizing components for rainfall intensity determined by storm occurrence of 1 in 5 years.

C. Gutters/Downspouts and all accessories shall be designed and provided by metal roofing manufacturer providing the standing seam metal roof panels.

1.05 DELIVERY, STORAGE AND HANDLING

A. Stack preformed and prefinished material to prevent twisting, bending or abrasion, and to provide ventilation. Slope to drain.

B. Prevent contact with materials during storage which may cause discoloration, staining or damage.

1.06 SEQUENCING AND SCHEDULING

A. Coordinate work with roofing work for correct sequencing of items which makes up entire weatherproof, rain drainage and sheet metal system.

B. Coordinate work with downspout discharge pipe inlet.

C. Coordinate gutter and downspout system with installation of field fabricated flashing and sheet metal and sheet metal roofing under Section 07600. Work of this Section shall bring gutters and downspouts to point of connection with roofing system, with necessary accommodations for connections.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Pre-Coated Galvanized Steel: ASTM A 446, Grade A, G 90 zinc coating, 24-gauge core steel, shop pre-coated.

B. Fasteners: Galvanized steel screws, bolts or nuts, as applicable.

C. Stiffener Angles and Supports: Formed steel, type to match gutters, 18-gauge and clad with prefinished metal cover.

D. Solder: ASTM B 32, 50-50 percent tin/lead solder with rosin flux for use with steel.

E. Neutralized: Five percent (5%) to ten percent (10%) washing soda solution.

F. Protective Back Paint for Galvanizing: Zinc chromate or galvanized iron type.

G. Bituminous Coating: FS TT-G-494, or MIL-C-18480, or SSPC-12, cold-applied bituminous mastic, compound, for 15 mil dry film thickness coating.

H. Wire Screen: One-half inch (1/2") mesh, stainless steel.

I. Splash Pads or Blocks: Precast concrete type; minimum 3000 psi at 28 days, with minimum five percent (5%) air entrainment.

2.02 FABRICATION

A. Gutters: SMACNA style profile as detail by Architect; same gauge as panel.

B. Downspouts: SMACNA profile as detailed by Architect; same gauge as panel.

C. Fabricate gutters and downspouts true to design and dimensions, straight and without deformation. Finish work free from blemishes, abrasions, tool marks, burrs and other defects which may affect strength or performance. Form corners to smallest radius possible without causing grain separation or otherwise impairing work. Allow for expansion and contraction.

D. Completely weld joints in gutter sections to provide watertight units. Form expansion joints between gutter sections as shown. Weld stiffener angles to gutters 4'-0" on center.

E. Weld angles to underside of gutters at downspout locations to form frame, weld downspout tube to angles.

F. Form gutters in eight foot (8') or ten foot (10') long welded sections, lap joints one and one-half inch (1-1/2"). Provide loose-locked expansion joints midway between outlet tubes and where gutter ends adjoin walls. Fit joints with cover strips in manner to provide watertight connections.

G. Provide outlet tubes with flanges riveted and soldered to form gutters. Extend tubes three inches (3") into downspouts. Set gutters to slope to downspouts minimum one-eighth inch (1/8") for each foot.

H. Form downspouts in eight foot to ten foot (8' - 10') lengths. Telescope end joints one and one-half inch (1-1/2") and lock longitudinal joints. Fasten downspouts to walls with three inch (3") wide straps. Space straps not more than eight feet (8') apart. Provide shoulder of solder on each side of downspout above each strap. Fasten straps to walls with screws in lead sleeves. Form downspouts of length to discharge water three feet to zero inches (3'–0") from building slab.

I. Lock and solder, or weld without flux all seams. Close tops of downspout heads with 18-gauge removable strainer type with wire screen.

J. Field measure site conditions prior to fabricating work.

K. Fabricate with required connection pieces.

L. Hem exposed edges of metal.

M. Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.

N. Anchorage Devices: SMACNA requirements. Type recommended by fabricator.

O. Downspout Supports: 18-gauge straps, Kynar. Color and finish to match gutter.

P. Gutter straps and supports to be 18-gauge and clad with prefinished metal cover as detailed.

Q. Seal all metal joints watertight for full metal surface contact.

R. Downspouts: Rectangular profile. Seal all joints, six inches by six inches (6" x 6").

2.03 FINISHES

A. Gutter and Downspouts: 70-75 percent fluorocarbon resin equivalent to Kynar 500/Hylar 5000; custom color as selected by Architect.

B. Back paint concealed metal surfaces with protective backing paint to minimum dry thickness of 15 mils.

C. Apply bitumen protective backing paint on surfaces in contact with dissimilar materials.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install gutters, downspouts and accessories in accordance with SMACNA Architectural Sheet Metal Manual.

B. Joint lengths with seams watertight. Flash and seal gutters to downspouts and accessories.

C. Slope gutters to drain.

D. Set splash blocks under downspouts.

3.02 FIELD QUALITY CONTROL

A. Flood test gutters and downspouts upon completion. Repair any leaks.

END OF SECTION 07 62 13

SECTION 07 72 00
ROOF ACCESSORIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes the following:
   1. Roof curbs
   2. Equipment supports
   3. Wall Mounted Access Ladders
   4. Pipe supports

1.03 SUBMITTALS

A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other work.

C. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
   1. Size and location of roof accessories specified in this Section.
   2. Method of attaching roof accessories to roof or building structure.
   3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.

D. Samples: For each type of exposed factory-applied finish required and for each type of roof accessory indicated, prepared on Samples of size to adequately show color.

E. Warranty: Special warranty specified in this Section.

1.04 QUALITY ASSURANCE

A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

1.06 PROJECT CONDITIONS

A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

1.07 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
   1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes and or roof expansion joints.

1.08 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof accessories that show evidence of deterioration of factory-applied finishes within specified warranty period.
   1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
      a) Color fading more than 5 Hunter units when tested according to ASTM D 2244.
      b) Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
      c) Cracking, checking, peeling, or failure of paint to adhere to bare metal.
   2. Finish Warranty Period: twenty (20) years from date of Substantial Completion.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers listed in other Part 2 articles.

2.02 METAL MATERIALS

A. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coated.

B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 (AZM150) coated.

C. Prepainted, Metallic-Coated Steel Sheet: Steel sheet metallic coated by hot-dip process and prepainted by coil-coating process to comply with ASTM A 755/A 755M.
   1. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coated.
   2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 (Class AZM150) coated.

3. Exposed Finishes: High-Performance Organic Finish (2-Coat Fluoropolymer): Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.
   a) Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements in AAMA 2605, except as modified below:
      (1) Humidity Resistance: 1000 hours.
      (2) Salt-Spray Resistance: 1000 hours.

D. Stainless-Steel Shapes or Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304 or Type 316, No. 2D finish.

2.03 MISCELLANEOUS MATERIALS

A. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.

B. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.

C. Elastomeric Sealant: ASTM C 920, polyurethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, and heavy bodied for hooked-type expansion joints with limited movement.

E. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

2.04 ROOF CURBS

A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
   1. Manufacturers:
      a) ThyCurb; Div. of Thybar Corporation.
      b) Uni-Curb, Inc.
      c) Vent Products Company, Inc.
   2. Load Requirements: Insert load requirements.
   3. Material: Galvanized steel sheet, 0.052 inch thick.
   4. Material: Aluminum sheet, 0.090 inch thick.
   5. Material: Stainless-steel sheet, 0.078 inch thick.

a) Finish: Prime painted.
b) Finish: Mill.

6. Liner: Same material as curb, of manufacturer's standard thickness and finish.
7. Factory install wood nailers at tops of curbs.
8. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
9. Factory insulate curbs with one and one-half inch (1-1/2") glass fiberboard insulation.
10. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of fourteen inches (14"), unless otherwise indicated.
11. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

2.05 EQUIPMENT SUPPORTS

A. Equipment Supports: Provide metal equipment supports, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Fabricate with welded or sealed mechanical corner joints and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Manufacturers:
   a) ThyCurb; Div. of Thybar Corporation.
   b) Uni-Curb, Inc.
   c) Vent Products Company, Inc.
2. Material: (Galvanized) steel sheet, 0.052 inch thick.
3. Material: Stainless-steel sheet, 0.078 inch thick.
4. Factory-install continuous wood nailers three and one-half inches (3-1/2") wide at tops of equipment supports.
5. Metal Counterflashing: Manufacturer's standard removable counterflashing, fabricated of same metal and finish as equipment support.
6. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
7. Fabricate units to minimum height of fourteen inches (14") unless otherwise indicated.
8. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

2.06 ROOF HATCHES

A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.

1. Manufacturers:
   Babcock-Davis; a Cierra Products Inc. Company.
   Bilco Company (The).
   Bristolite Skylights.
2. Loads: Fabricate roof hatches to withstand 40 pounds per square foot external and 20 pounds per square foot internal loads.

3. Type and Size: Single-leaf lid, thirty inches by thirty-six inches (30" x 36").
4. Curb and Lid Material: Aluminum sheet, 0.090 inch thick.
   a) Finish: Baked enamel.
5. Insulation: Cellulosic-fiberboard.
6. Interior Lid Liner: Manufacturer's standard metal liner of same material and finish as outer metal lid.
7. Exterior Curb Liner: Manufacturer's standard metal liner of same material and finish as metal curb.
8. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
9. Fabricate units to minimum height of fourteen inches (14"), unless otherwise indicated.
10. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate hatch curbs with height tapered to match slope to level tops of units.
11. Hardware: Galvanized steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.
    a) Provide 2-point latch on covers larger than eighty-four inches (84").
12. Ladder Safety Post: Manufacturer's standard ladder safety post. Post to lock in place on full extension. Provide release mechanism to return post to closed position.
    a) Height: Forty-two inches (42") above finished roof deck.
    b) Material and Finish: Aluminum, mill finished.
    c) Diameter: Pipe with one and five-eighths inch (1-5/8") OD tube.

2.07 WALL MOUNTED ACCESS LADDERS

A. Shall be premanufactured wall-mounted ladder of 0.125 by three-inch (3") aluminum channel side rails with non-slip rungs as manufactured by O'Keeffe's Inc., or approved equal.

2.08 ROOF SUPPORTS

A. Light-Duty Pipe Roof Supports: Extruded-aluminum base assembly and Type 304 stainless-steel roller assembly for pipe sizes indicated, including manufacturer's standard hardware for mounting to structure or structural roof deck.
   1. Manufacturers:
      a) Thaler Metal Industries Ltd.
      b) Miro Industries

B. Duct Roof Supports: Two-inch (2") diameter, extruded-aluminum, urethane-insulated supports, including manufacturer's standard hardware for mounting to structure or structural roof deck.
   1. Manufacturers:
      a) Thaler Metal Industries Ltd., or approved equal.

2.09 ROOF WALKWAYS

A. Roof Walkway: Multiple C-shaped-channel formed-metal planks, as follows, with upper surface punched in serrated diamond or rectangular shapes to produce raised slip-resistant surface and drainage holes. Provide support framing, brackets, connectors, nosings, and other accessories and components needed for complete installation. Include step units for changes in elevation.

1. Manufacturers:
   a) GS Metals Corp.;
   b) Unistrut Corporation, or approved equal.
2. Plank Width: Eleven and three-fourths inches (11-3/4").
3. Walkway Width: As indicated.
4. Channel Depth: One and one-half inches (1-1/2).
5. Metal Material: 0.079-inch thick, hot-dip galvanized steel sheet.
6. Provide isolation pads attached to supports so supports are completely isolated from roof membrane surface.

2.10 PREFORMED FLASHINGS

A. Exhaust Vent Flashings: Double-wall metal flashing sleeve, urethane insulation filled, with integral deck flange, fourteen inches (14") high, with removable metal hood and perforated metal collar, and as follows:
   1. Manufacturers:
      a) Thaler Metal Industries Ltd., or approved equal.
   2. Metal: Aluminum sheet, 0.064 inch, mill finished.
   3. Diameter: Four inches (4").

B. Vent Stack Flashing: Metal flashing sleeve, with integral deck flange, uninsulated, and as follows:
   1. Manufacturers:
      a) Thaler Metal Industries Ltd., or approved equal.
   2. Metal: Aluminum sheet, 0.064 inch thick, mill finished.
   3. Height: Eight inches (8").
   4. Diameter: As indicated.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
   1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
   2. Verify dimensions of roof openings for roof accessories.
   3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Install roof accessories to fit substrates and to result in watertight performance.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
   1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.
   3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.

D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

E. Roof Curb Installation:
   1. Set roof curb so top surface of roof curb is level.

F. Equipment Support Installation:
   1. Set equipment support so top surface of equipment support is level.

G. Roof Hatch Installation:
   1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
   2. Attach safety railing system to roof hatch curb.
   3. Attach ladder safety post according to manufacturer's written instructions.

H. Preformed Flashing Installation:
   1. Secure to roof membrane according to vent and stack flashing manufacturer's written instructions.

I. Seal joints with elastomeric sealant as required by manufacturer of roof accessories.

3.03 TOUCH UP

A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Division 9 painting Sections.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.04 CLEANING

A. Clean exposed surfaces according to manufacturer's written instructions.

END OF SECTION 07 72 00

SECTION 07 92 00
SEALANTS AND CAULKING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work includes:
1. Throughout the Work, seal and caulk joints where shown on the Drawings and/or as required by the Consultant to provide and maintain watertight and airtight continuous seals.
2. This section includes, but is not limited to, providing joint sealants to be in the following areas:
   a) Exterior openings
   b) Perimeter of soffits to wall surfaces
   c) Control and expansion joints in masonry and concrete walls
   d) Trim moldings to wall surfaces
   e) Parapet cap copings and counterflashings at roofing conditions
   f) Perimeter joints of plumbing fixtures
   g) Inside corners of ceramic tile walls
   h) All other joints as directed by the Consultant

1.02 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who have successfully completed a minimum of three projects in the last five years of similar type and scope as the project herein. The workmen shall be thoroughly trained and experienced in joint sealant applications and completely familiar with the specified requirements and methods needed for the proper performance of the work of this section.

B. Joint sealer products shall be obtained from a single manufacturer for each product required.

C. Job Site Testing
1. All joint sealants shall be field tested for proper adhesion to the joint substrates prior to installation. Do not proceed with the work until job site tests have been approved by the Consultant.
2. Locate and provide test joints for each type of joint sealant, and substrate as directed by the Consultant.
3. Acceptable test joints will be used as the standard for all joint sealant work on the project.
4. Sealants which fail to adhere to the substrates shall be removed and replaced at no extra cost to the Owner.

1.03 SUBMITTALS

A. Product Data: Within fifteen (15) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;

2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Consultant, will become the basis for accepting or rejecting actual installation procedures used on the Work.

B. Samples: Accompanying the submittal described above, submit samples of each sealant, each backing material, each primer, and each bond breaker proposed to be used. Include color samples of full standard product color range.

1.04 PRODUCT HANDLING

A. Do not retain at the job site material which has exceeded the shelf life recommended by its manufacturer.

B. Store products on site in compliance with the manufacturer's recommendations and as necessary to prevent damage or deterioration to the materials.

1.05 WARRANTY

A. All sealants and caulking shall be provided with a five (5) year manufacturer's warranty.

PART 2 – PRODUCTS

2.01 SEALANTS AND CAULK

A. Except as specifically otherwise approved by the Consultant, use only the types of sealants described in this Section. Polysulfide sealants require manufacturer's corporate seal.

B. Vertical surfaces and non-traffic bearing horizontal surfaces:
1. One-part Urethane Sealant: Sealant for use at coping joints, reglet joints, etc., shall be a one-component urethane non-sag, gun grade sealant designed for use in active exterior joints, and shall meet or exceed Federal Specification No. 1 TT-S-00230C, Type II, Class A, ASTM C 920. Where joint surfaces are contained or are contaminated with bituminous materials, provide manufacturer's modified-type sealant (modified with coal-tar or asphalt as required), as manufactured by Sonneborn, or approved equal.
2. Silyl-terminated Polyether Sealant: To seal the leading edge of the CTEM membrane, to bond CTEM at terminations with metal, and for open CTEM seam repair, sealant shall be a thermosetting, solvent free, non-slump, self-fixturing, multipurpose structural sealant which shall meet the following physical and performance properties, M-1 as manufactured by Chem Link, Inc., or approved equal.

Properties	
Specific Gravity	1.62 (13.5 lbs./gallon)
Viscosity	800,000 cps Brookfield RTV, TF spindle, 4 rpm 70 degrees F.
Shear Strength (ASTM D-1002)	300 psi+ (7 day ambient cure)
Elongation @ break (ASTM D-412)	300% (7 day ambient cure)

Hardness Shore A (ASTM C-661)	50 – 55 (14 day ambient cure)
Tack free time (ASTM C-679)	35 minutes
Low temperature flex	Minus 20 degrees F: PASS
Slump (sag) (ASTM C-639)	Zero slump
Shrinkage (ASTM D-2453)	No measurable shrinkage (14 cay cure)
Service temperature	-40 degrees F to 200 degrees F

C. Colors
   1. Colors for each sealant installation will be selected by the Consultant from standard colors normally available from the specified manufacturers.
   2. Should such standard color not be available from the approved manufacturer except at additional charge, provide such colors at no additional cost to the Owner.

2.02 PRIMERS

A. Use only those primers which are non-staining, have been tested for durability on the surfaces to be sealed, and are specifically recommended for this installation by the manufacturer of the sealant used.

2.03 BACKUP MATERIALS

A. Use only those backup materials which are specifically recommended for this installation by the manufacturer of the sealant used, which are non-absorbent, and which are non-staining.

B. Acceptable types include:
   1. Closed-cell resilient urethane or polyvinyl-chloride foam;
   2. Closed-cell polyethylene foam;
   3. Closed-cell sponge of vinyl or rubber;
   4. Polychloroprene tubes or beads;
   5. Polyisobutylene extrusions

C. Preformed support strips for ceramic tile control joint and expansion joint work: Use polyisobutylene or polychloroprene rubber.

2.04 BOND-BREAKER TAPE

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

2.05 MASKING TAPE

A. For masking around joints, provide masking tape complying with Fed Spec UU-T-l06c.

2.06 EXPANDED POLYETHYLENE JOINT FILLER

A. Provide flexible, compressible, closed-cell, polyethylene of not less than 10 psi compression deflection (25%); except provide higher compression deflection strength as may be necessary to withstand installation forces and provide proper support for sealants, surface water absorption of not more than 0.1 pounds per square foot, as manufactured by Sonneborn, or approved equal.

2.07 JOINT PRIMER/SEALER

A. Provide type of joint primer/sealer recommended by sealant manufacturer for joint surfaces to be primed or sealed.

2.08 SEALANT BACKER ROD

A. Provide compressible rod stack of polyethylene foam, polyurethane foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable, non-absorptive material as recommended by sealant manufacturer for back-up of and compatibility with sealant. Where used with hot-applied sealant, provide heat-resistant type which will not be deteriorated by sealant application temperature as indicated.

2.09 FLUID APPLIED URETHANE DECK SEALANT SYSTEM

A. Shall be a two layer, minimum sixty (60) mil dry film thickness, two-component liquid urethane waterproofing system suitable for concrete deck application (exposed), as manufactured by Gates Engineering, UDC-82, or approved equal.

2.10 MULTI-COMPONENT POLYURETHANE SEALANT

A. Except as otherwise indicated, provide manufacturer's standard, non-modified, 2-or-more-part, polyurethane-based, elastomeric sealant; complying with either ASTM C 920, Type M, Class 25, or FS TT-S-00227E, Class A; self-leveling grade/type where used in joints of surfaces subject to traffic, otherwise non-sag grade/type, as manufactured by Sonneborn, or approved equal.

B. Durability: Less than 0.5 square inch adhesion/cohesion loss for three (3) samples of both mortar and aluminum; ASTM C 719 test procedure.

C. Adhesion in Peel: Fifteen-pound (15#) peel strength and 10% maximum loss of bond to substrate; ASTM C 794.

D. Bituminous Modification: Where joint surfaces contain or are contaminated with bituminous materials, provide manufacturer's modified type sealant which is compatible with joint surfaces (modified with coal-tar or asphalt as required).

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Concrete surfaces
   1. Install only on surfaces which are dry, sound, and well brushed, wiping free from dust.
   2. At open joints, remove dust by mechanically blown compressed air if so required.
   3. Use solvent to remove oil and grease, wiping the surfaces with clean rags.
   4. Where surfaces have been treated, remove the surface treatment by sandblasting or wire brushing.
   5. Remove laitance and mortar from joint cavities.
   6. Where backstop is required, insert the approved backup material into the joint cavity to the depth needed.

B. Steel surfaces
   1. Steel surfaces in contact with sealant:
      Sandblast as required to achieve acceptable surface for bond.
      a) If sandblasting is not practical, or would damage adjacent finish, scrape the metal or wire brush to remove mill scale.
      b) Use solvent to remove oil and grease, wiping the surfaces with clean rags.
   2. Remove protective coatings on steel by sandblasting or by using a solvent which leaves no residue.

C. Aluminum surfaces
   1. Aluminum surfaces in contact with sealant:
      a) Remove temporary protective coatings, dirt, oil, and grease.
      b) When masking tape is used for protective cover, remove the tape just prior to applying the sealant.
   2. Use only such solvents to remove protective coatings as are recommended for that purpose by the manufacturer of the aluminum work, and which are non-staining.

3.03 INSTALLATION OF BACKUP MATERIAL

A. Use only the backup material recommended by the manufacturer of the sealant used, and approved by the Consultant for the particular installation, compressing the backup material 25 to 50 percent to achieve a positive and secure fit.

B. When using backup of tube rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose or rod backup stock.

3.04 PRIMING

A. Use only the primer recommended by the manufacturer of the sealant, and approved by the Consultant for the particular installation, applying in strict accordance with the manufacturer's recommendations as approved by the Consultant.

3.05 BOND-BREAKER INSTALLATION

A. Provide an approved bond-breaker where recommended by the manufacturer of the sealant for preventing the sealant to adhering to rigid, inflexible joint filler materials or to joint surfaces at back of joint where such adhesion would result in sealant failure. Adhere strictly to the installation recommendations as approved by the Consultant.

3.06 INSTALLATION OF SEALANTS

A. Prior to start of installation in each joint, verify the joint type according to details on the Drawings, or as otherwise directed by the Consultant, and verify that the required proportion of width of joint to depth of joint has been secured.

B. Comply with ASTM C1193 for application of joint sealants.

C. Equipment:
   1. Apply sealant under pressure with power-actuated or hand gun, or by other appropriate means.
   2. Use guns with nozzle of proper size, and providing sufficient pressure to completely fill the joints as designed.

D. Thoroughly and completely mask joints where the appearance of sealant on adjacent surfaces would be objectionable.

E. Install the sealant in strict accordance with the manufacturer's recommendations as approved by the Consultant, thoroughly filling joints to the recommended depth.

F. Tool joints to the profile shown on the Drawings, or as otherwise required if such profiles are not shown on the Drawings.

G. Do not install sealant when air temperature is under 40 degrees F. Sealant temperature to be at least 50 degrees F; controlled warming permitted to ease installation.

H. Cleaning up:
   1. Remove masking tape immediately after joints have been tooled.
   2. Clean adjacent surfaces free from sealant as the installation progresses, using solvent or cleaning agent recommended by the manufacturer of the sealant used.

3.07 HORIZONTAL EXTERIOR JUNCTURE OF METAL EDGE AND COPING TO EXTERIOR WALL, REGLET JOINTS, CAULK JOINTS, WALL JOINTS, AND WALL CRACKS ABOVE THE ROOF LINE

A. All reglet and horizontal edge metal and coping metal on exterior of wall shall be raked clean of loose materials and debris, and sealed with caulk sealant. Sealant shall be properly installed and tooled in a workmanlike manner to ensure permanent seal.

B. All open coping and masonry terminations and intersections shall be cleaned out and sealed with backer rod and caulk sealant. Backer rod shall be minimum one and one-half (1-1/2) times the width of the opening to be sealed. Caulk sealant thickness shall be minimum of one-half (1/2) of the width of the opening to be sealed.

C. Clean joint surfaces immediately before installation of gaskets, sealant or caulking compound. Remove dirt, insecure coatings, existing sealant, moisture, and other substances which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

D. Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

E. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.

F. Install sealant backer rod for liquid-applied sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for application indicated.

G. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint to bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.

H. For normal moving joints to be sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than one-half inch (1/2") deep nor less than one-fourth inch (1/4") deep.

END OF SECTION 07 92 00

SECTION 07 99 90
GENERAL ROOF NOTES

PART 1 – GENERAL

1.01 GENERAL ROOF NOTES:

A. PROVIDE ALL REQUIRED UTILITY / STRUCTURAL COMPONENTS AND/OR CONNECTIONS FOR THE FUNCTIONAL USE OF ALL CONTRACTOR SUPPLIED EQUIPMENT OR APPLIANCES, REGARDLESS OF ANY OMISSIONS OR INCONSISTENCIES ENCOUNTERED IN THE CONSTRUCTION DOCUMENTS.

B. THE WORD 'PROVIDE' SHALL MEAN 'FURNISH AND INSTALL COMPLETE AND READY TO USE.'

C. IF DISCREPANCIES APPEAR BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE HIGHER QUALITY, QUANTITY, AND PRICE SHALL SUPERSEDE.

D. THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL BECOME FAMILIAR WITH THE PROJECT AND THE ON-SITE / OFF-SITE CONDITIONS PRIOR TO BIDDING OR COMMENCING WORK.

E. ROOF SLOPES SHOWN ON DRAWING ARE GENERAL AND CONCEPTUAL ONLY. PROVIDE POSITIVE DRAINAGE TO ALL ROOF DRAINS. VERIFY TAPER IN SHOP DRAWINGS.

F. PROVIDE TAPERED INSULATION CRICKETS (1/2"/FT. MIN. SLOPE) AT HIGH SIDE OF ALL MECHANICAL UNITS SMOKE VENTS, ROOF HATCHES & OTHER MISC. ROOF PENETRATIONS, TO SHED WATER AROUND & TO ENSURE POSITIVE ROOF DRAINAGE.

G. ALL WOOD BLOCKING AT ROOF EDGES ARE TO BE FABRICATED FROM CONT. 2X6 FR-WD BOARDS. PROVIDE LARGER 2X FR-WD AS REQUIRED PER DIMENSIONED DETAILED OR AS FIELD CONDITIONS DICTATE. ALL COPING TO BE SLOPED TOWARD THE INTERIOR.

H. ALL EXPOSED FLASHING, COPING (IF APPLICABLE) AND THEIR ACCESSORIES SHALL BE PREFINISHED. STAINLESS-STEEL METAL FLASHING WHERE NOT VISIBLE FROM THE GROUND.

I. HEIGHT OF ALL NAILERS SHALL BE FLUSH WITH EXISTING NAILBASE THICKNESS

J. ALL THROUGH WALL FLASHING SYSTEMS TO ACCOMMODATE 8" MINIMUM FLASHING HEIGHT FROM FINISHED ROOF SURFACE. PROVIDE END DAMS AS CONDITIONS ALLOW. ALL FLASHING TO HAVE 4" LAP MINIMUM AND OR STEP.

K. PROVIDE NEW CONCRETE SPLASH BLOCKS ON ROOF ELEVATION SUPPORTED BY A WALK PAD WHERE DOWNSPOUTS EMPTY ONTO EXISTING ROOF AND ARE NOT PRESENT.

L. ALL PIPE AND CONDUIT SHALL RECEIVE PIPE SUPPORTS AND RELATED SHIMS, AND SHALL BE PLACED ON AN ADDITIONAL FULLY ADHERED ROOF MEMBRANE UNDER SPECIFIED WALK PAD PRIOR TO SURFACE APPLICATION. SUPPORTS TO OCCUR AT 10'-0" O.C. AND WITHIN 2'-0" OF ALL SLOPES, TEES AND CORNERS. ALL PIPE TO BE PAINTED PER BUILDING CODE REQUIREMENTS.

M. ALL METAL FLASHING SHALL EXTEND BEYOND ROOF EDGE MIN. 8" WHERE FLASHING ABUTS VERTICAL WALL SURFACE AS DETAILED. ALL FLASHING SHALL BE INSTALLED IN SHINGLE FASHION.

N. ALL EQUIPMENT CURBS TO BE RAISED AS NECESSARY TO MAINTAIN 10" MINIMUM HEIGHT ABOVE FINISHED ROOF SURFACE.

O. MECHANICAL, ELECTRICAL, AND PLUMBING ROOF EQUIPMENT SHOWN ON THIS PLAN IS FOR GENERAL ARCHITECTURAL INFORMATION ONLY.

P. FLASHING AND STRIPPING MATERIALS, BASE PLY SHEETS, MEMBRANES, INSULATION, AND ACCESSORIES SHALL BE MANUFACTURER SPECIFIC PRODUCTS.

Q. GUTTERS SHALL BE PREFINISHED GALVANIZED STEEL, SIZE TO MATCH EXISTING.

R. PROVIDE PREFINISHED 1/4"x1 1/2" GALVANIZED STEEL BENT PLATE BRACKETS AND PREFINISHED 1" GALVANIZED STEEL SPACERS AT 36" O.C. MAX, STAGGER WITH EACH OTHER AT 18" O.C. ALL FABRICATION TO MATCH EXISTING.

S. PROVIDE PREFINISHED GUTTER EJ'S 40'-0" O.C. MAX.

T. DOWNSPOUTS SHALL BE 5"x6" PREFINISHED GALVANIZED STEEL UNO AS INDICATED ON ROOF PLAN. PROVIDE PREFINISHED 2" GALVANIZED STEEL HANGERS AT 36" O.C. PROVIDE VANDAL PROOF STAINLESS STEEL STRAINERS AT EACH OUTLET. COORDINATE LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.

U. PROVIDE SPLASH BLOCKS AT ALL ROOF LEADER NOZZLES THAT SPILL ONTO GROUND, WHERE NOT PRESENT.

END OF SECTION 07 99 90

SECTION 09 91 00
PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. Surface preparation, priming and painting of the following:
1. Gas Lines
2. Conduit and miscellaneous piping
3. Roof Hatch
4. Roof Drain Strainers

B. Prime coats specified herein will not be required on items delivered with primer or shop coats already applied; however, touch-up shall be required prior to final coats.

1.02 RELATED SECTIONS

A. Related Sections include the following:
1. Section 04 05 23 – Through-Wall Flashing System
2. Section 06 10 53 – Miscellaneous Rough Carpentry
3. Section 07 22 16 – Roof Board Insulation
4. Section 07 41 13 – Metal R-Panel Replacement
5. Section 07 41 13.1 – Standing Seam Metal Panels
6. Section 07 53 50 – Adhered Multi-ply Roof System Overlay
7. Section 07 54 19 – Multi-ply PVC Roof System
8. Section 07 62 00 – Sheet Metal and Miscellaneous Accessories
9. Section 07 62 13 – Gutters and Downspouts
10. Section 07 72 00 – Roof Accessories
11. Section 07 92 00 – Sealants and Caulking

1.03 SUBMITTALS

A. Submit manufacturer's literature and letters attesting that the products used meet or exceed these specifications. Submittals shall indicate Flame Spread Rating of all paint products proposed for use in accordance with ASTM E 84

B. Paint color selections for gas lines will be industrial yellow, all other piping will be non-fibered aluminum.

1.04 QUALITY ASSURANCE

A. Supplier and Contractor: Firms of long-term operation, technically proficient and experienced in this trade.

B. Primers and undercoats: From same manufacturer as finished coats.

C. All paint shall be of the kind and brands hereinafter specified, or of a prior approved equal. All painting materials shall be of the highest quality and have indentifying labels on the containers.

1.05 PRODUCT HANDLING, STORAGE AND DELIVERY

A. Deliver paint to the site in manufacturer's sealed containers. Minimum contents of each manufacturer's label on each container: manufacturer's name, type of paint, color of paint, and instructions for reducing. Thinning may be done only in accordance with directions given on the container. Job mixing or job tinting may be done only when approved by the Consultant. Mixing or thinning operations shall not be conducted in the interior or on the roof.

B. Store paint and combustible material in a manner to protect from the possibility of fire. Store paint in areas where spillage can be reduced and confined and not damage Work already in place. Store no paint or combustible material in the interior of any existing building on the site.

1.06 JOB CONDITIONS

A. Full coverage will be required for the application specified. Apply additional coats if required to produce full coverage.

B. Make each coat of paint slightly darker than the preceding coat, unless otherwise directed.

C. Where new Work adjoins existing painted surfaces, carry new painting to an appropriate stopping point along the existing painted surface.

1.07 WARRANTY

A. Guarantee all Work performed under this Contract for a period of two (2) year from the date of Substantial Completion against all defects in materials and Workmanship. Defective Work includes cracking, peeling, scaling of paint, water absorption or rusting.

PART 2 - PRODUCTS

2.01 SCHEDULE OF PAINTING

A. Unless otherwise noted, all paints specified are products of Sherwin-Williams, or approved equal. No other manufacturers are permitted, unless the specified paint becomes unavailable. The kinds of paint and the number of coats required on the surfaces shall be as follows:

B. Surface Preparation: Scrape and sand free all loose paint, rust and foreign materials. Sand paint nicks to feather-smooth surface edges. Prepare structural metal surfaces to receive the following paint schedule:
   1. First Coat: Rustproof Primer as recommended by paint manufacturer
   2. Second Coat: Sherwin-Williams "Industrial Enamel," or approved equal.

3. Third Coat: Same as second coat.

PART 3 - EXECUTION

3.01 INSPECTION

A. Review the surfaces to be painted and coordinate with the responsible subcontractor to assure correctness of the surfaces. Report painting-related problems to the Consultant.

B. Proceeding with the installation of painting shall be construed as evidence of acceptance of the conditions under which painting Work will be accomplished.

3.02 PREPARATION

A. Protect by drop cloth or other measures all exterior roof and wall surfaces against overspray and paint drippage. Immediately clean any spillage or overspray.

B. Remove oils, grease, rust, scale and dust and touch-up any pitted or abraded places on items that have been shop coated. Where steel and iron have a heavy coating of scale or are coated with asphalt or other bituminous materials, remove such materials by wire-brushing or sandblasting if necessary to produce a satisfactory surface for painting.

C. Before painting, remove accessories, plates, light fixtures, and similar items, or provide ample protection of such items. Upon completion of each area, replace above items in Working order. When necessary, disconnect convector covers to permit painting of surfaces behind them; replace and re-connect upon completion. Use only skilled mechanics for removal and connection items.

3.03 PAINTING APPLICATION

A. Do not apply exterior paint or coatings in damp, rainy weather, or until the surface has thoroughly dried from the effects of such weather. Do not paint when the temperature is below 50 degrees Fahrenheit.

B. Ensure surfaces to be painted are clean, dry, smooth and protected from dampness.

C. Ensure each coat of paint, on the structural metal is applied in uniform and even coats and allowed to dry at least 48 hours before subsequent coats are applied.

D. Provide finish Work that is uniform, of approved color, smooth and free from runs, sags, defective application, clogging or excessive flooding. Make edges of paint adjoining other materials or colors sharp and clean by overlapping.

END OF SECTION 09 91 00

SPECIFIC ROOF NOTES

1. INSTALL FLUSH METAL WALL PANELS PER DETAIL R2.20
2. REMOVE, REINSTALL AND CERTIFY LIGHTING PROTECTION SYSTEM
3. CLEAN, WIRE BRUSH, TREAT RUSTED AND PAINT EXISTING ROOF ACCESS LADDER WITH ALUMINIZED PAINT.
4. CLEAN, WIRE BRUSH, TREAT RUST AND PAINT EXISTING ROOF HATCHES WITH ALUMINIZED PAINT.

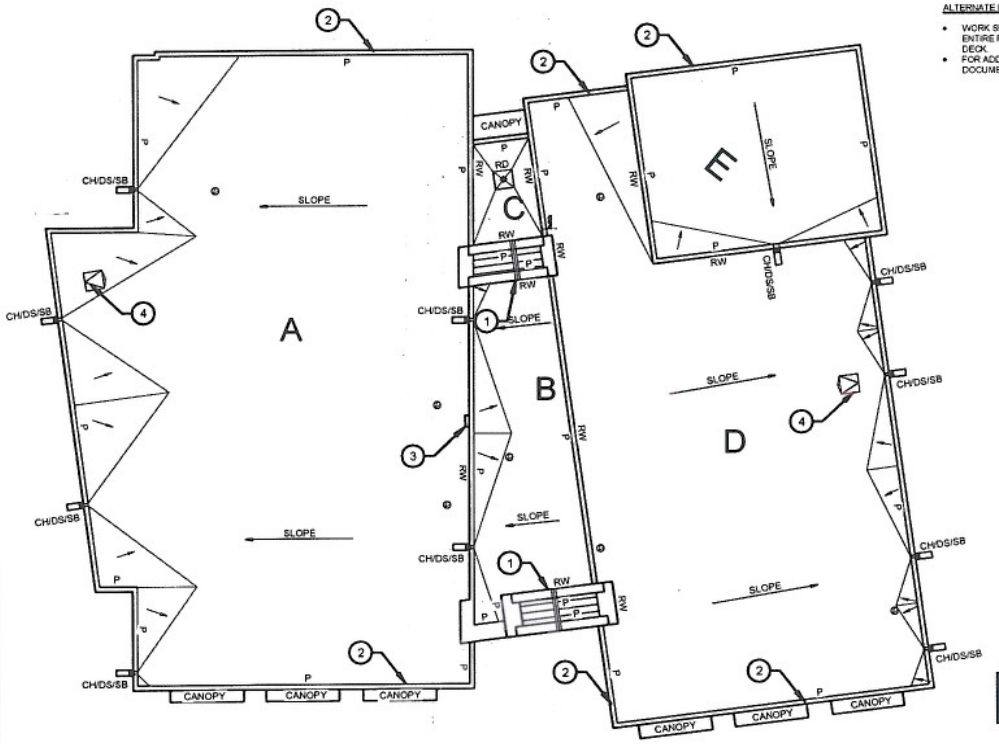
SCOPE OF WORK

BASE PROPOSAL 1: CINCO RANCH BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A RECOVER. THE ENTIRE ROOFING SYSTEM IS TO BE POWER BROOMED AND CLEANED TO ACCEPT A NEW MECHANICALLY FASTENED GYPSUM COVERBOARD.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS

ALTERNATE PROPOSAL 1: CINCO RANCH BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL REROOF. THE ENTIRE ROOFING SYSTEM IS TO BE REMOVED DOWN TO THE EXISTING METAL ROOF DECK.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.



REFER TO SPECIFICATION SECTION 07 99 90 FOR ALL GENERAL ROOF NOTES

STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER
06/04/2020

ROOF LEGEND

- METAL ROOF SYSTEM
- LOW SLOPE ROOF SYSTEM

1 OVERALL ROOF PLAN - CINCO RANCH BRANCH LIBRARY
NOT TO SCALE

NORTH

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-4448
22503 Katy Frwy Suite 9
Houston, TX 77450
(832)874-1388

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive.

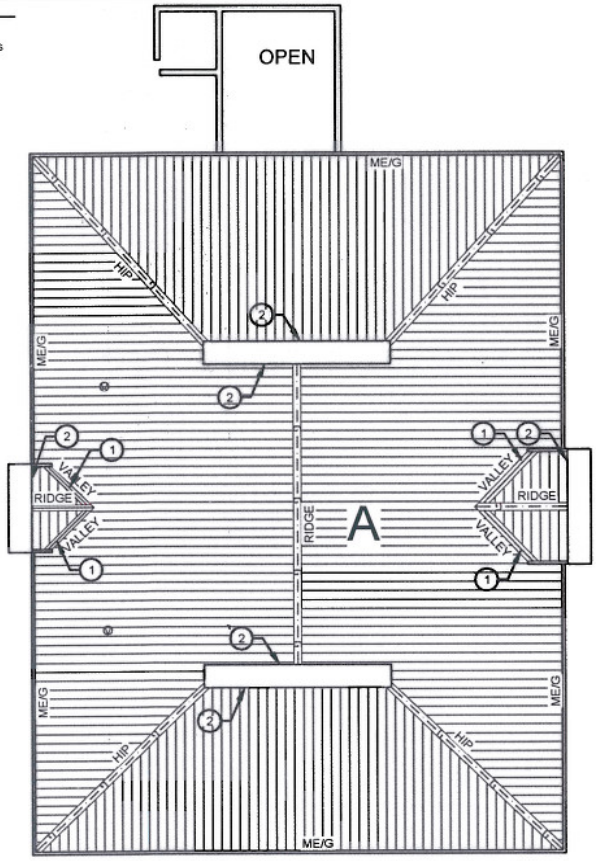
PROJECT NO. 19-1378-42
DATE: 06/04/2020
DRAWN BY: CB
100% CONST. DOCUMENTS

PROJECT FOR: # B20-088
FORT BEND COUNTY
CINCO RANCH BRANCH LIBRARY
2620 COMMERCIAL CENTER BLVD.
KATY, TEXAS

R1.01

SPECIFIC ROOF NOTES

1. REWORK TWO EXISTING VALLEY SYSTEMS AS PART OF BASE PROPOSAL #2
2. REMOVE AND REPLACE THROUGH WALL FLASHING AND RAISE EIFS CONDITION TO ALLOW 8" MINIMUM FLASHING HEIGHT.



SCOPE OF WORK

BASE PROPOSAL 2: BOB LUTTS FULSHEAR BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE MAINTENANCE REPAIRS.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

ALTERNATE PROPOSAL 2: BOB LUTTS FULSHEAR BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL REROOF.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

REFER TO SPECIFICATION SECTION 07 99 90 FOR ALL GENERAL ROOF NOTES

STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ROOF LEGEND

METAL ROOF SYSTEM

NORTH

1 OVERALL ROOF PLAN - (BOB LUTTS) FULSHEAR BRANCH LIBRARY

NOT TO SCALE

ARMKO
Texas Registered Engineering Firm F-6495
22503 Katy Frwy Suite B
Houston, TX 77450
1(800)874-1388

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive.

PROJECT NO. 19-1378-42

DATE: 06/04/2020

DRAWN BY: CB

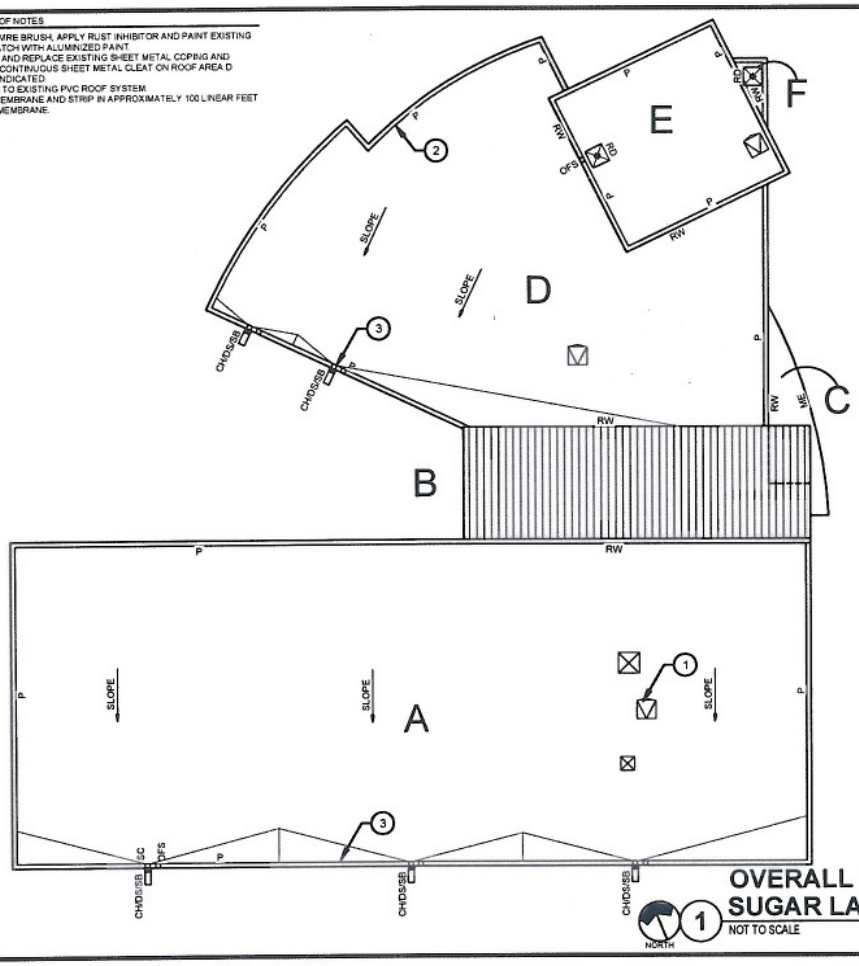
100% CONST. DOCUMENTS

PROJECT FOR: # B20-088
FORT BEND COUNTY
FULSHEAR BRANCH LIBRARY
8100 FARM TO MARKET 359
FULSHEAR, TEXAS

R1.02

SPECIFIC ROOF NOTES

1. CLEAN, WIRE BRUSH, APPLY RUST INHIBITOR AND PAINT EXISTING ROOF HATCH WITH ALUMINIZED PAINT.
2. REMOVE AND REPLACE EXISTING SHEET METAL COPING AND INSTALL CONTINUOUS SHEET METAL CLEAT ON ROOF AREA D WHERE INDICATED.
3. REPAIRS TO EXISTING PVC ROOF SYSTEM.
4. CLEAN MEMBRANE AND STRIP IN APPROXIMATELY 100 LINEAR FEET OF PVC MEMBRANE.



SCOPE OF WORK

BASE PROPOSAL 3, SUGARLAND BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE MAINTENANCE REPAIRS ASSOCIATED WITH A PVC ROOF SYSTEM TO INCLUDE INSTALLATION OF NEW SHEET METAL COPING AND CONTINUOUS METAL CLEAT.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

ALTERNATE PROPOSAL 3, SUGARLAND BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE REPAIRS ASSOCIATED WITH BASE PROPOSAL 3, AND INSTALLATION OF POLYURETHANE LIQUID APPLIED ROOF SYSTEM.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

REFER TO SPECIFICATION SECTION 07 99 90 FOR ALL GENERAL ROOF NOTES

06/04/2020

OVERALL ROOF PLAN - SUGAR LAND LIBRARY

1 NOT TO SCALE

ROOF LEGEND

- METAL ROOF SYSTEM
- LOW SLOPE ROOF SYSTEM

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6493
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1388

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive.

PROJECT NO. 19-1378-42

DATE: 06/04/2020

DRAWN BY: CB

100% CONST. DOCUMENTS

PROJECT FOR: # B20-088
FORT BEND COUNTY
SUGAR LAND BRANCH LIBRARY
550 ELDGRDGE ROAD
SUGAR LAND, TEXAS

R1.03

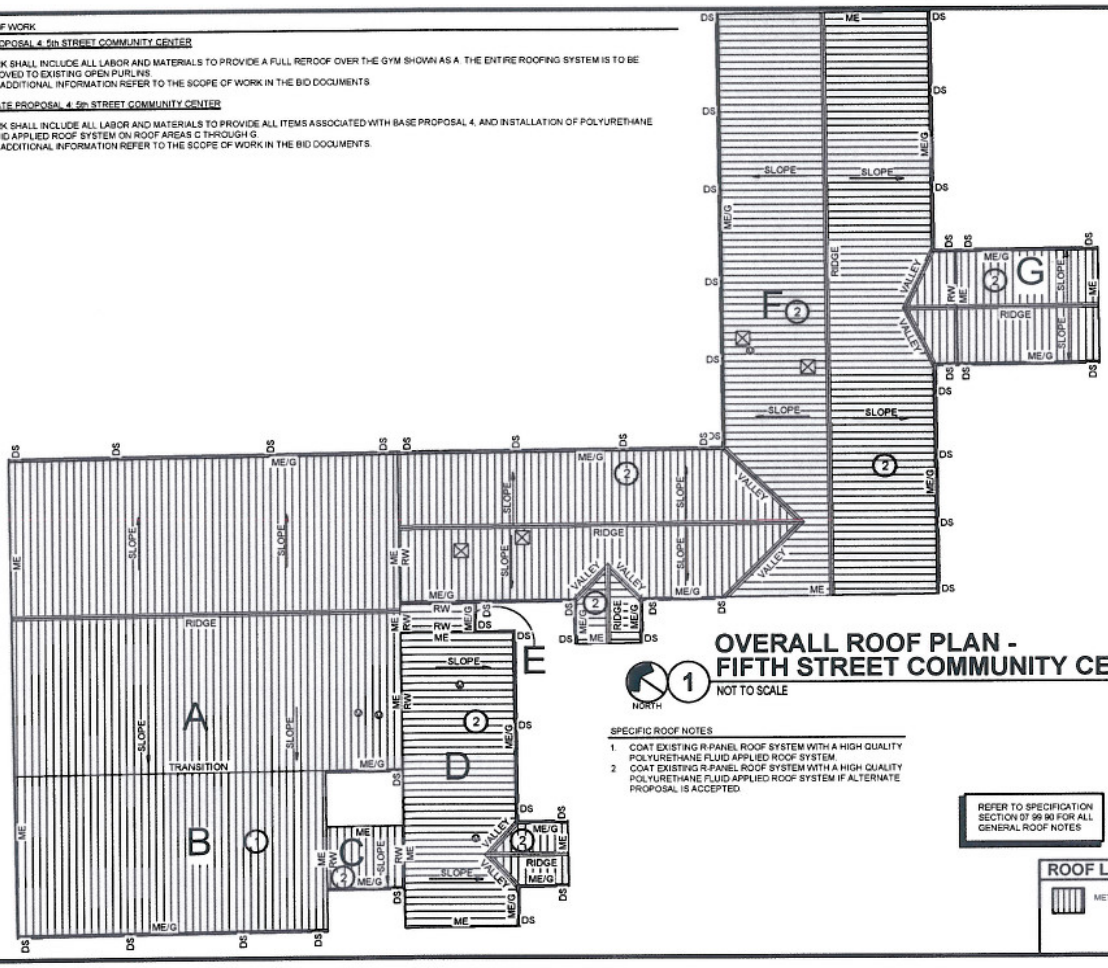
SCOPE OF WORK:

BASE PROPOSAL 4: 5th STREET COMMUNITY CENTER

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL REROOF OVER THE GYM SHOWN AS A. THE ENTIRE ROOFING SYSTEM IS TO BE REMOVED TO EXISTING OPEN PURLINS.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

ALTERNATE PROPOSAL 4: 5th STREET COMMUNITY CENTER

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE ALL ITEMS ASSOCIATED WITH BASE PROPOSAL 4, AND INSTALLATION OF POLYURETHANE LIQUID APPLIED ROOF SYSTEM ON ROOF AREAS C THROUGH G.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.



OVERALL ROOF PLAN - FIFTH STREET COMMUNITY CENTER

1 NOT TO SCALE

NORTH

SPECIFIC ROOF NOTES

1. COAT EXISTING R-PANEL ROOF SYSTEM WITH A HIGH QUALITY POLYURETHANE FLUID APPLIED ROOF SYSTEM.
2. COAT EXISTING R-PANEL ROOF SYSTEM WITH A HIGH QUALITY POLYURETHANE FLUID APPLIED ROOF SYSTEM IF ALTERNATE PROPOSAL IS ACCEPTED.

REFER TO SPECIFICATION SECTION 07 99 90 FOR ALL GENERAL ROOF NOTES

STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ROOF LEGEND

METAL ROOF SYSTEM

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-8495
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1588

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive.

PROJECT NO. 19-1378-42

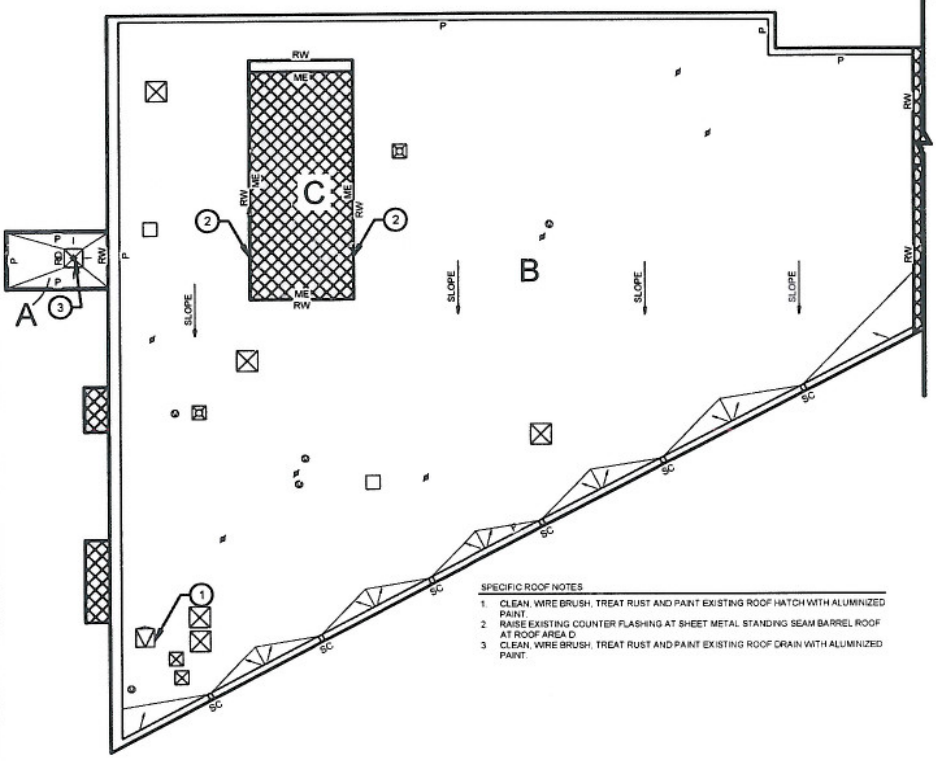
DATE: 06/04/2020

DRAWN BY: CB

100% CONST. DOCUMENTS

PROJECT FOR: # B20-088
FORT BEND COUNTY
FIFTH STREET COMMUNITY CENTER
3110 FIFTH STREET
STAFFORD, TEXAS

R1.04



SCOPE OF WORK

BASE PROPOSAL 5, MISSOURI CITY BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A RECOVER THE ENTIRE ROOFING SYSTEM IS TO BE POWER BROOMED AND CLEANED TO ACCEPT A NEW MECHANICALLY FASTENED GYPSUM COVERBOARD.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

ALTERNATE PROPOSAL 5, MISSOURI CITY BRANCH LIBRARY

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL REROOF. THE ENTIRE ROOFING SYSTEM IS TO BE REMOVED DOWN TO THE EXISTING METAL ROOF DECK.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.

SPECIFIC ROOF NOTES

1. CLEAN, WIRE BRUSH, TREAT RUST AND PAINT EXISTING ROOF HATCH WITH ALUMINIZED PAINT.
2. RAISE EXISTING COUNTER FLASHING AT SHEET METAL STANDING SEAM BARREL ROOF AT ROOF AREA D.
3. CLEAN, WIRE BRUSH, TREAT RUST AND PAINT EXISTING ROOF DRAIN WITH ALUMINIZED PAINT.

REFER TO SPECIFICATION SECTION 07 99 90 FOR ALL GENERAL ROOF NOTES

STATE OF TEXAS
DEAN D. BROWN
117503
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ROOF LEGEND

- LOW SLOPE ROOF SYSTEM
- METAL ROOF SYSTEM
- NOT IN CONTRACT

1 OVERALL ROOF PLAN - MISSOURI CITY BRANCH LIBRARY

NOT TO SCALE

NORTH

ARMKO INDUSTRIES INC.
Texas Registered Engineering Firm F-4435
22503 Katy Freeway Suite 9
Houston, TX 77450
1(888)674-1388

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive.

PROJECT NO. 19-1378-42

DATE: 06/04/2020

DRAWN BY: CB

100% CONST. DOCUMENTS

PROJECT FOR: # B20-088
FORT BEND COUNTY
MISSOURI CITY BRANCH LIBRARY
1530 TEXAS PARKWAY
MISSOURI CITY, TEXAS

R1.05

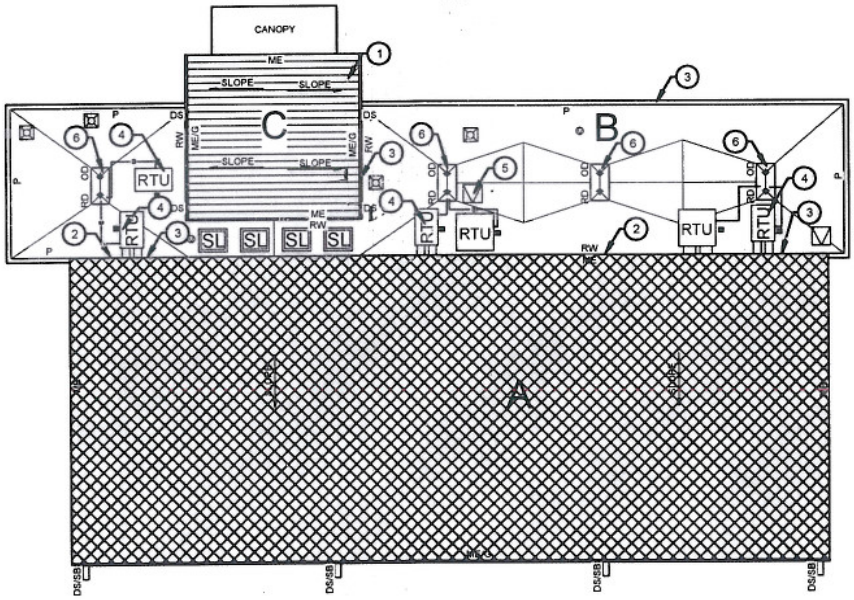
SPECIFIC ROOF NOTES

1. REMOVE AND REPLACE EXISTING STANDING SEAM METAL ROOF ON AREA C.
2. REMOVE ALL VERTICAL WALL JOINT SEALANTS AND BACKER RODS AND REPLACE WITH NEW.
3. APPLY NEW HIGH QUALITY ELASTOMERIC PAINT TO ALL VERTICAL TILT-WALL JOINTS.
4. RAISE EXISTING RTU CURBS TO BE 10"- INCHES ABOVE NEW ROOF SURFACE.
5. CLEAN, WIRE BRUSH, TREAT RUST AND PAINT EXISTING ROOF HATCH WITH ALUMINIZED PAINT.
6. CLEAN, WIRE BRUSH, TREAT RUST AND PAINT EXISTING ROOF DRAIN WITH ALUMINIZED PAINT.

SCOPE OF WORK

BASE PROPOSAL 6, FORT BEND BOYS AND GIRLS CLUB.

- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL RE-ROOF ON ROOF AREAS B AND C. THE ENTIRE ROOFING SYSTEM IS TO BE REMOVED TO EXISTING LIGHTWEIGHT CONCRETE ROOF DECK ON AREA B.
- FOR ADDITIONAL INFORMATION REFER TO THE SCOPE OF WORK IN THE BID DOCUMENTS.



REFER TO SPECIFICATION SECTION 07 99 90 FOR ALL GENERAL ROOF NOTES

STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER
06/04/2020

ROOF LEGEND

- METAL ROOF SYSTEM
- NOT IN CONTRACT
- LOW SLOPE ROOF SYSTEM

NORTH

1 OVERALL ROOF PLAN - BOYS AND GIRLS CLUB
NOT TO SCALE

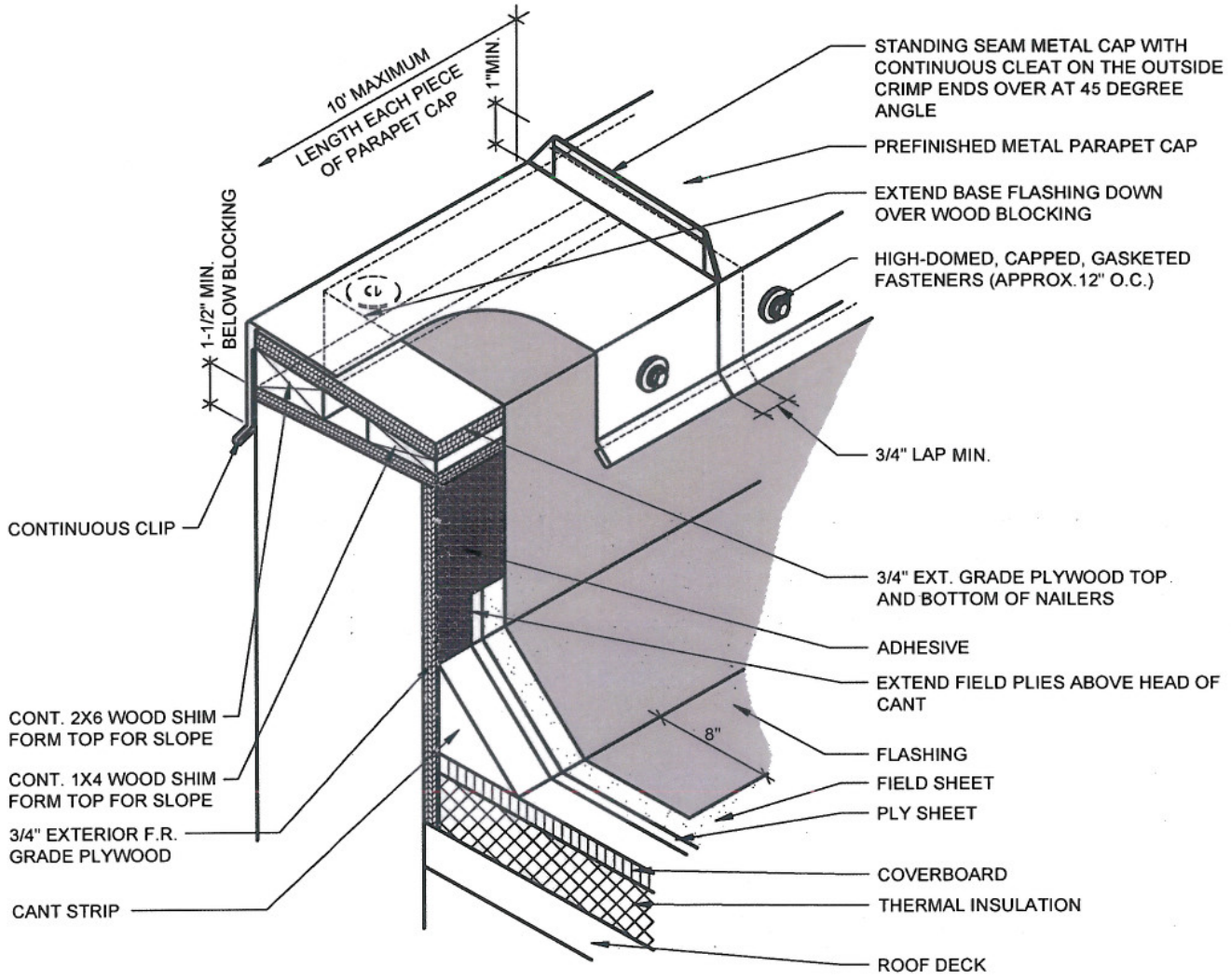
ARMKO
Texas Registered Engineering Firm F-6498
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1388

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive.

PROJECT NO. 19-1378-42
DATE: 06/04/2020
DRAWN BY: CB
100% CONST. DOCUMENTS

PROJECT FOR: # B20-088
FORT BEND COUNTY
BOYS AND GIRLS CLUB
5525 HOBBY STREET
HOUSTON, TEXAS

R1.06

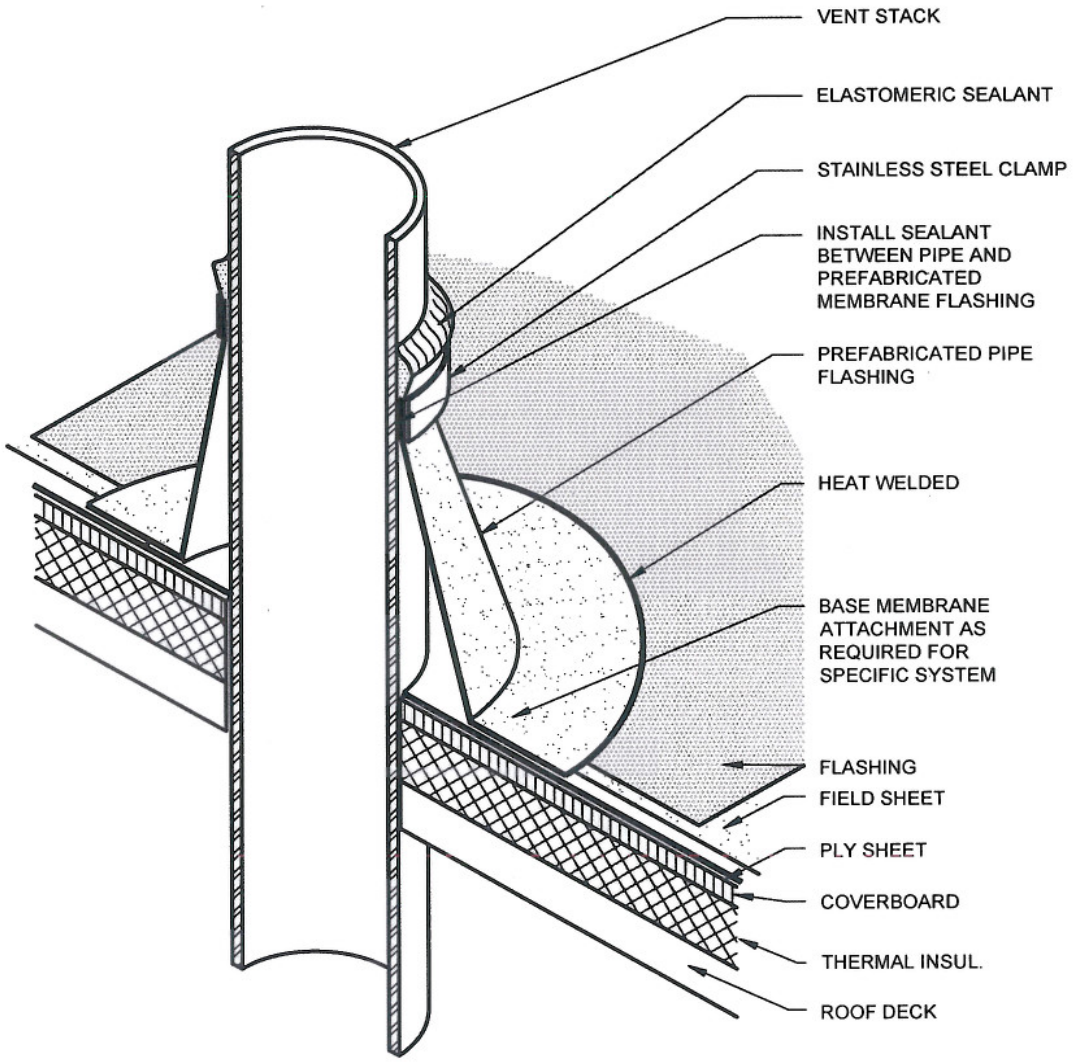


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS	R2.01
DETAIL NAME: LOW PARAPET	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE / DATE: 06/04/2020	DRAWN BY: CB

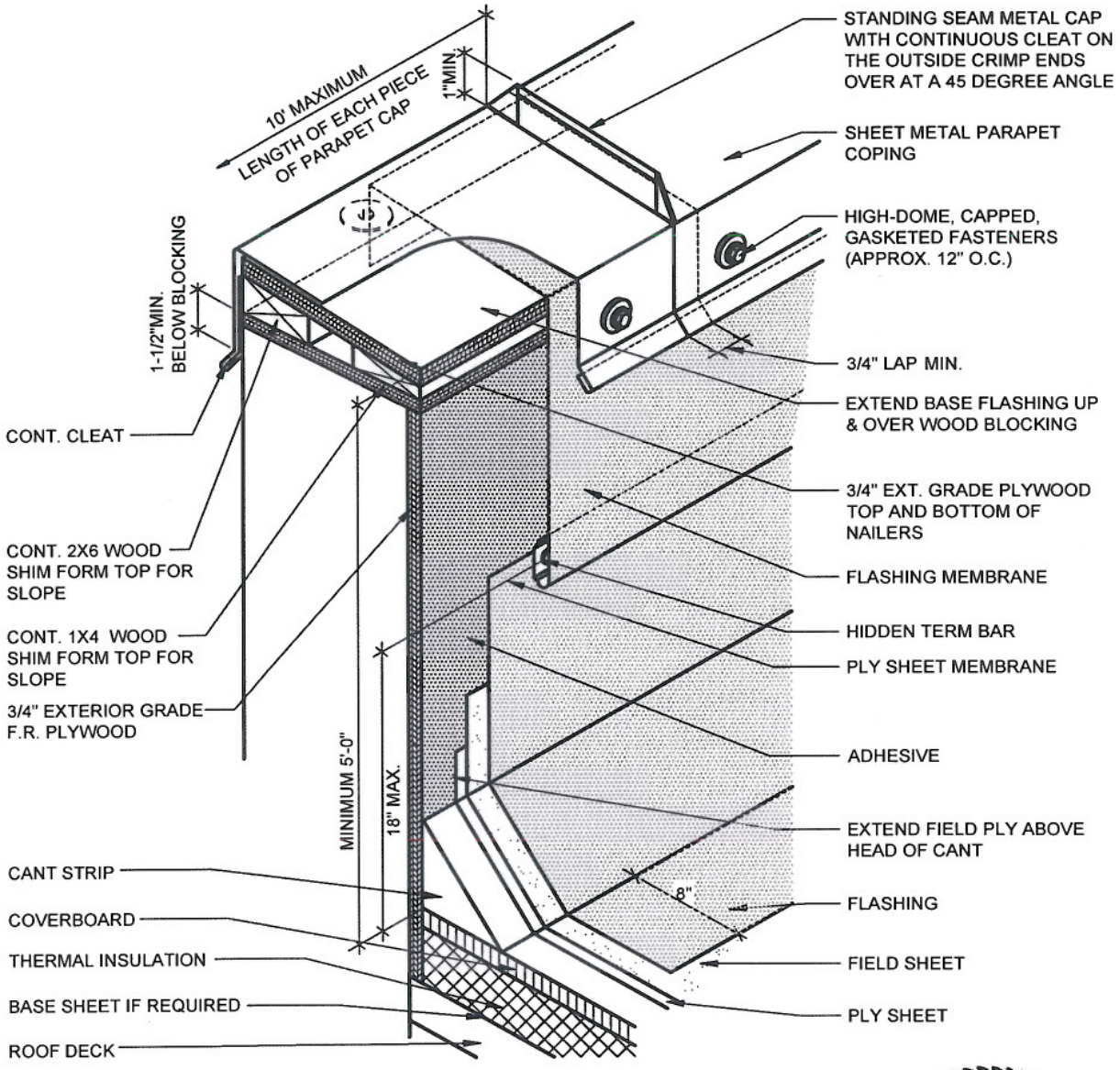


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.02
DETAIL NAME: VENT STACK		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB

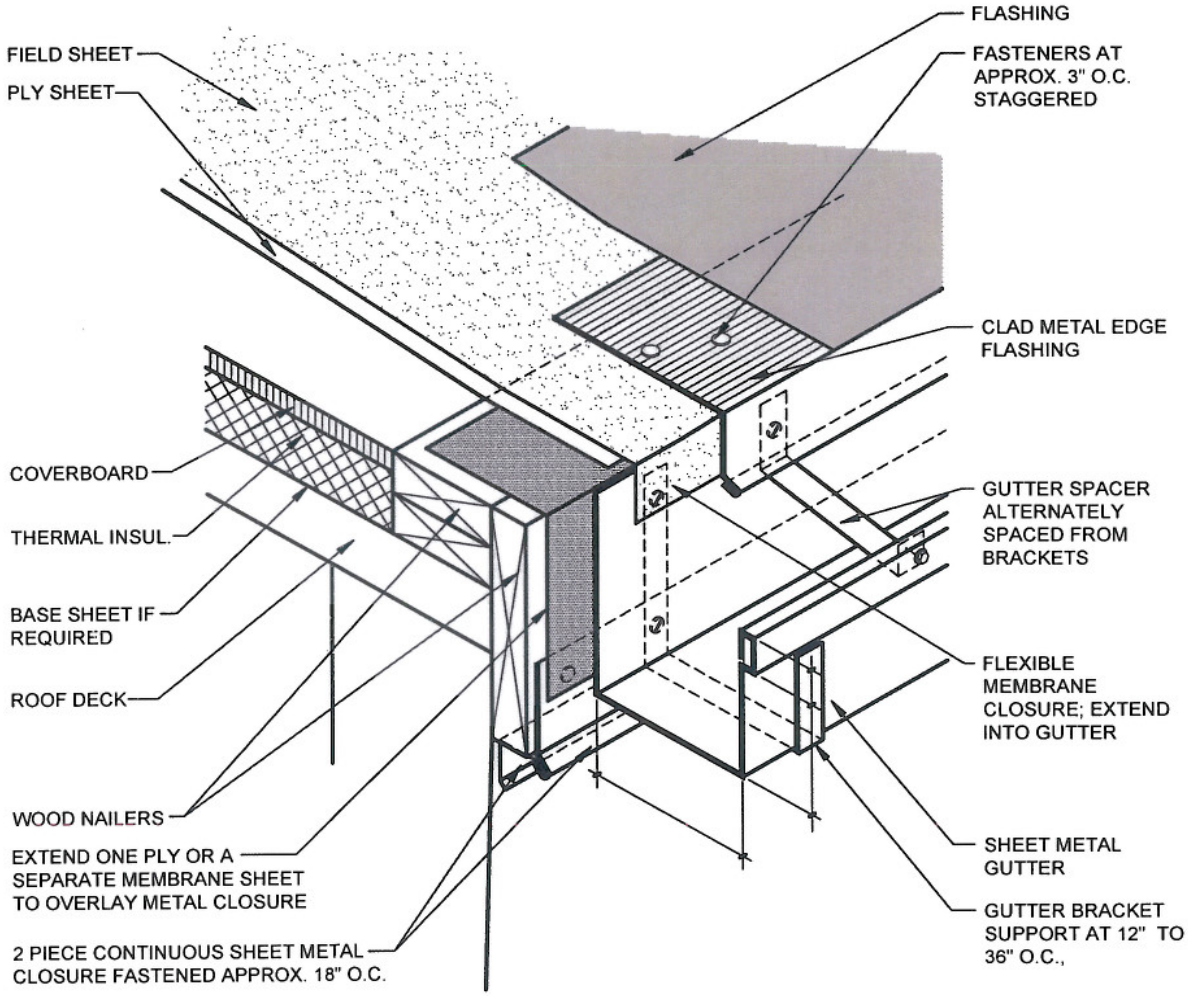


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered
Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS	R2.03
DETAIL NAME: TALL PARAPET	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE | DATE: 06/04/2020	DRAWN BY: CB

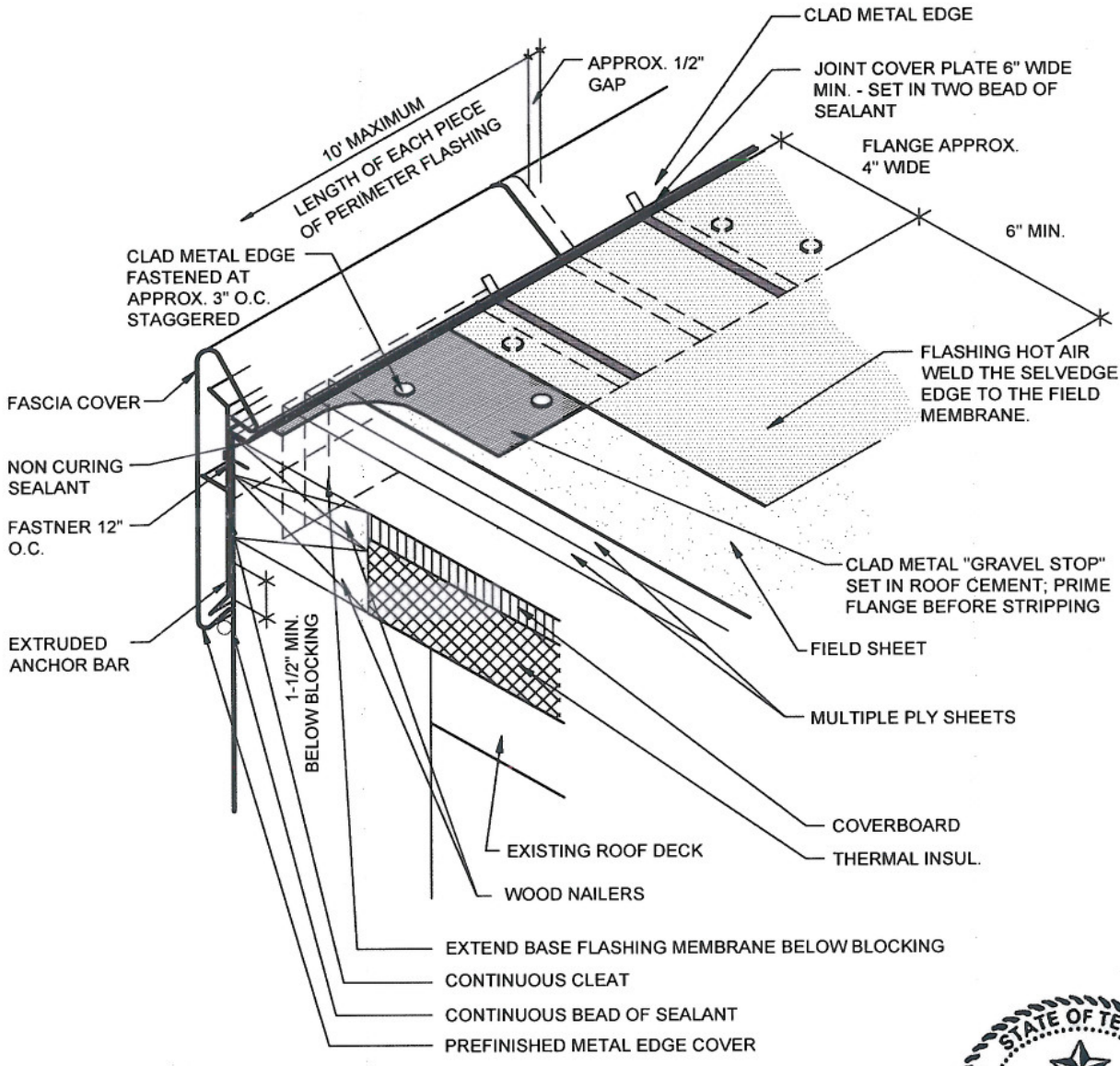


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS	R2.04
DETAIL NAME: METAL EDGE GUTTER	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE | DATE: 06/04/2020	DRAWN BY: CB

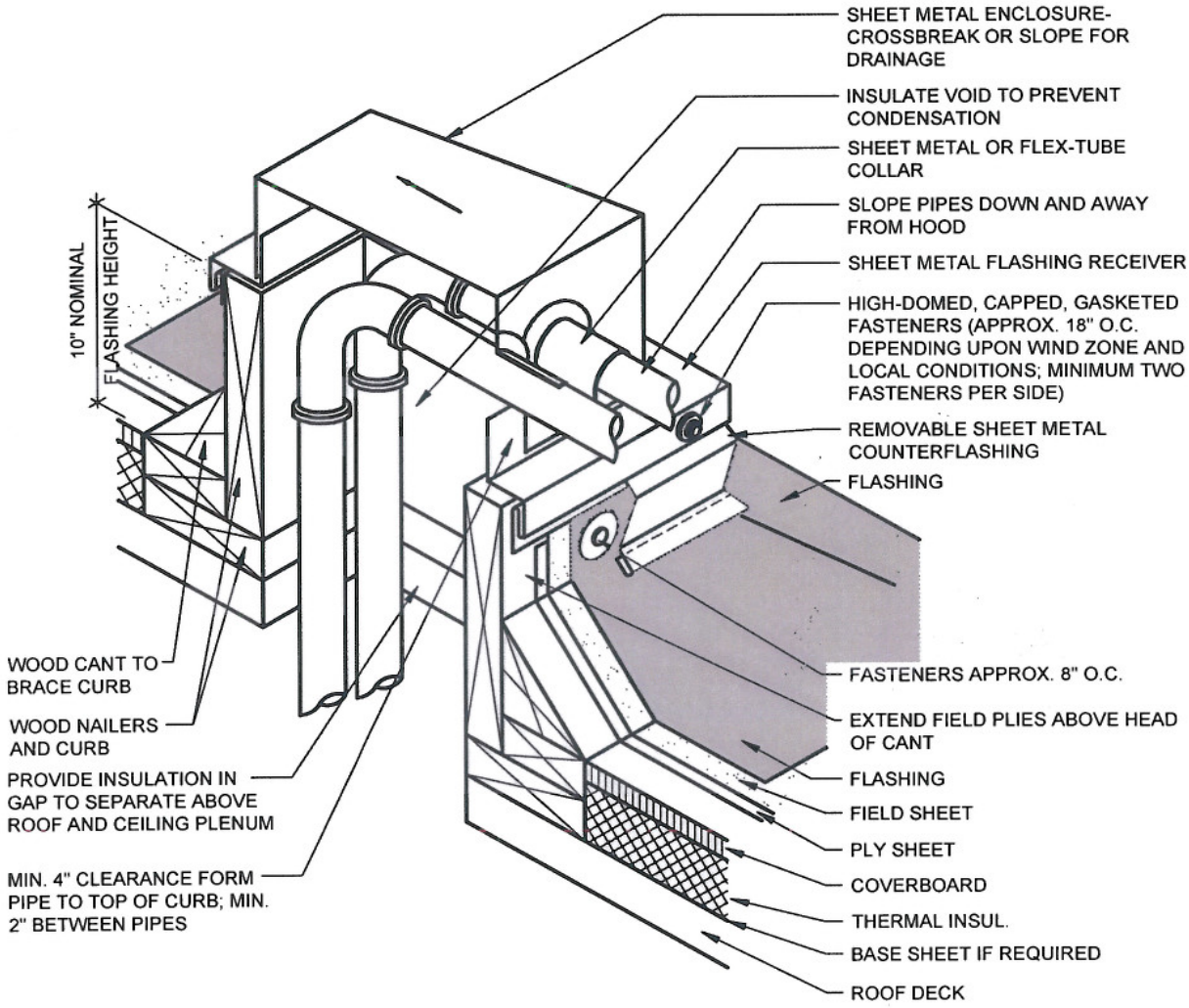


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES; FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.05
DETAIL NAME: METAL EDGE		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB

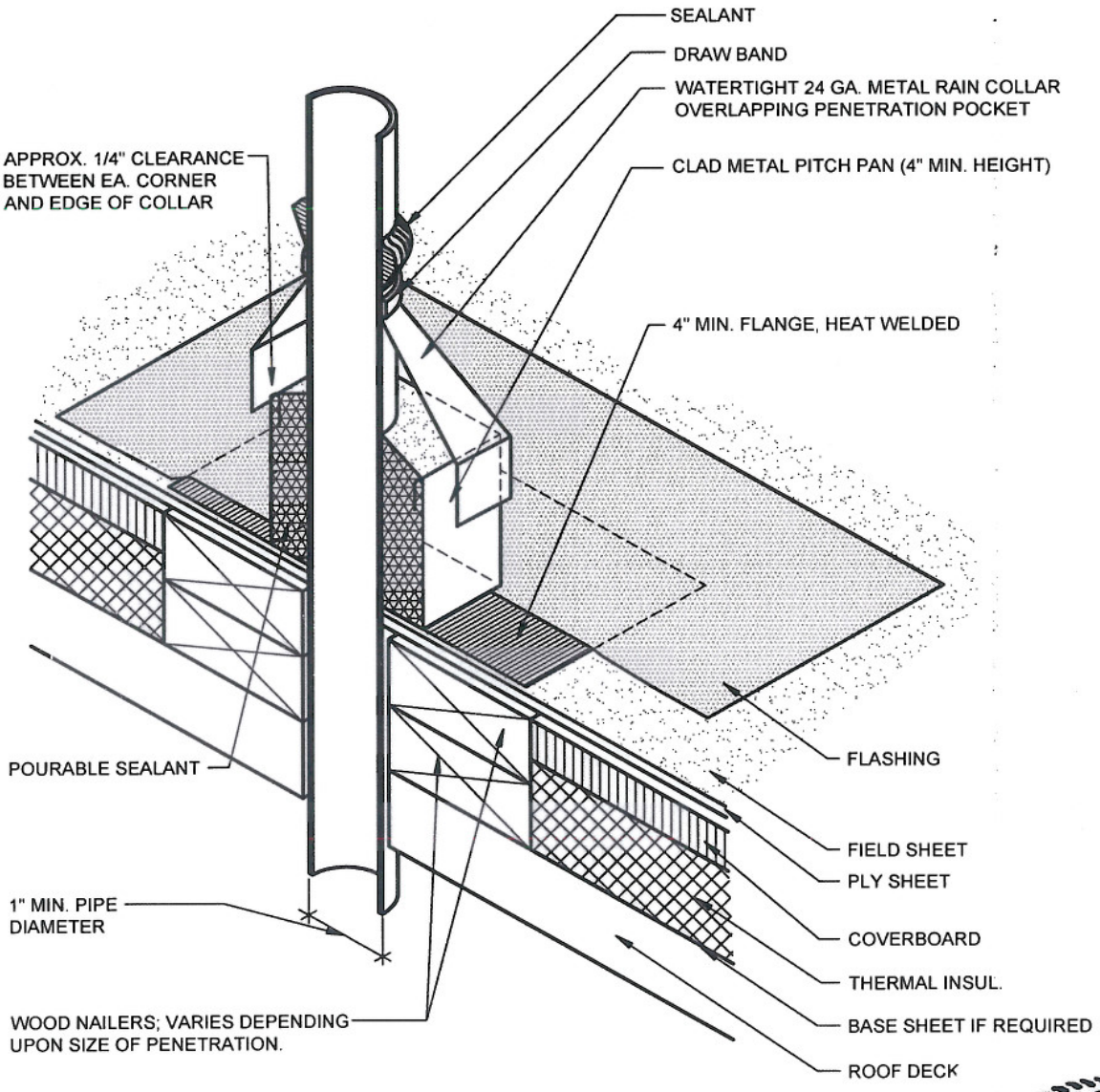


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.06
DETAIL NAME: PIPEBOX		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB

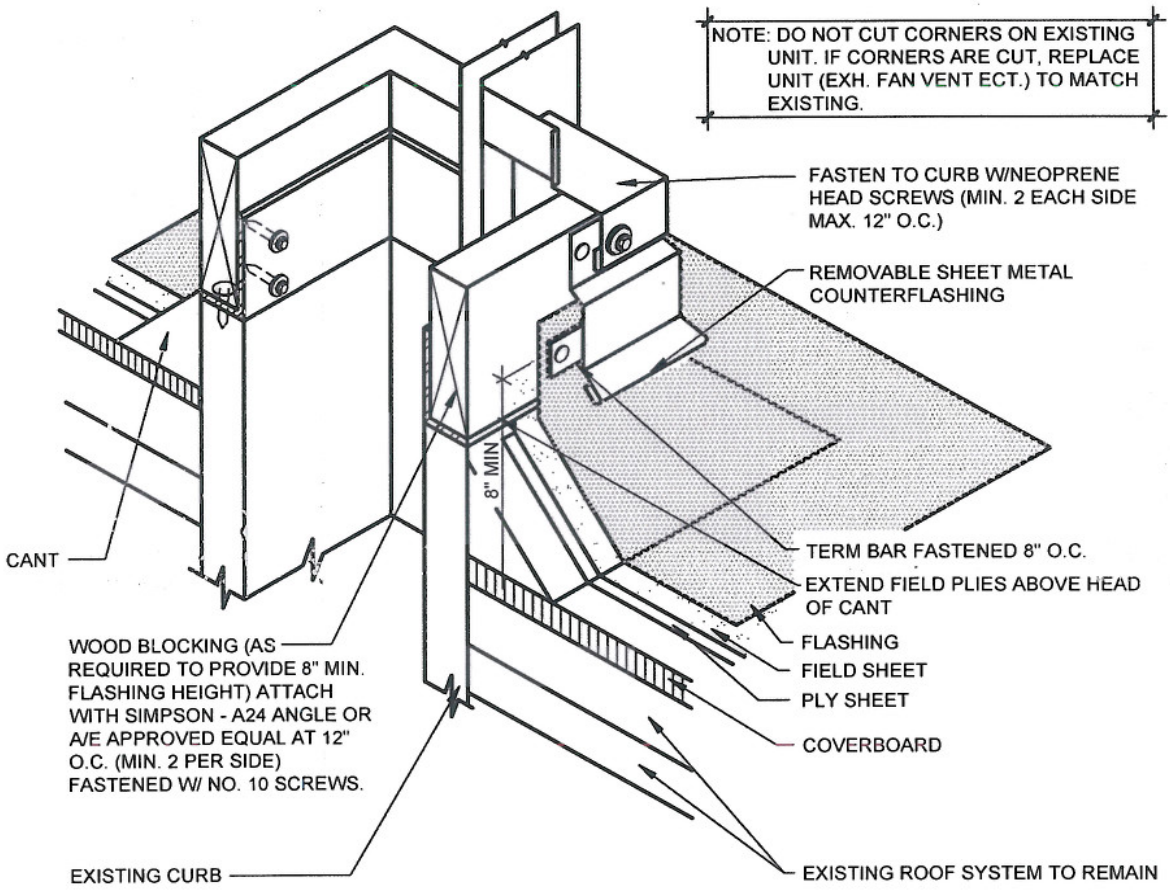


STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.07
DETAIL NAME: PITCH PAN		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

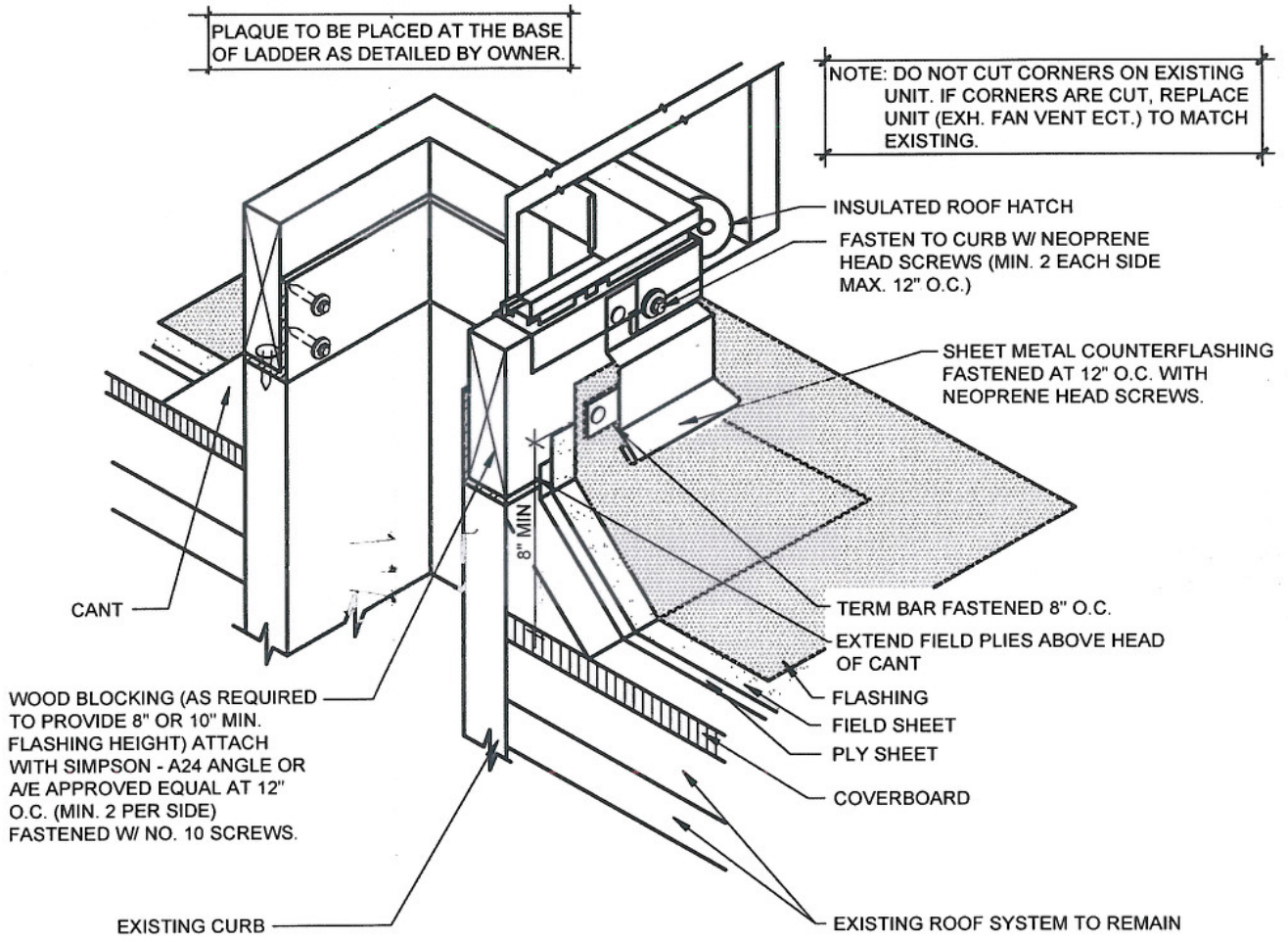
PROJECT FOR: # B20-088 FORT BEND COUNTY
CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES,
FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB
KATY, TEXAS

R2.08

DETAIL NAME: MECHANICAL CURB

PROJECT NO: 19-1378-42 | 100% CONSTRUCTION DOCUMENTS

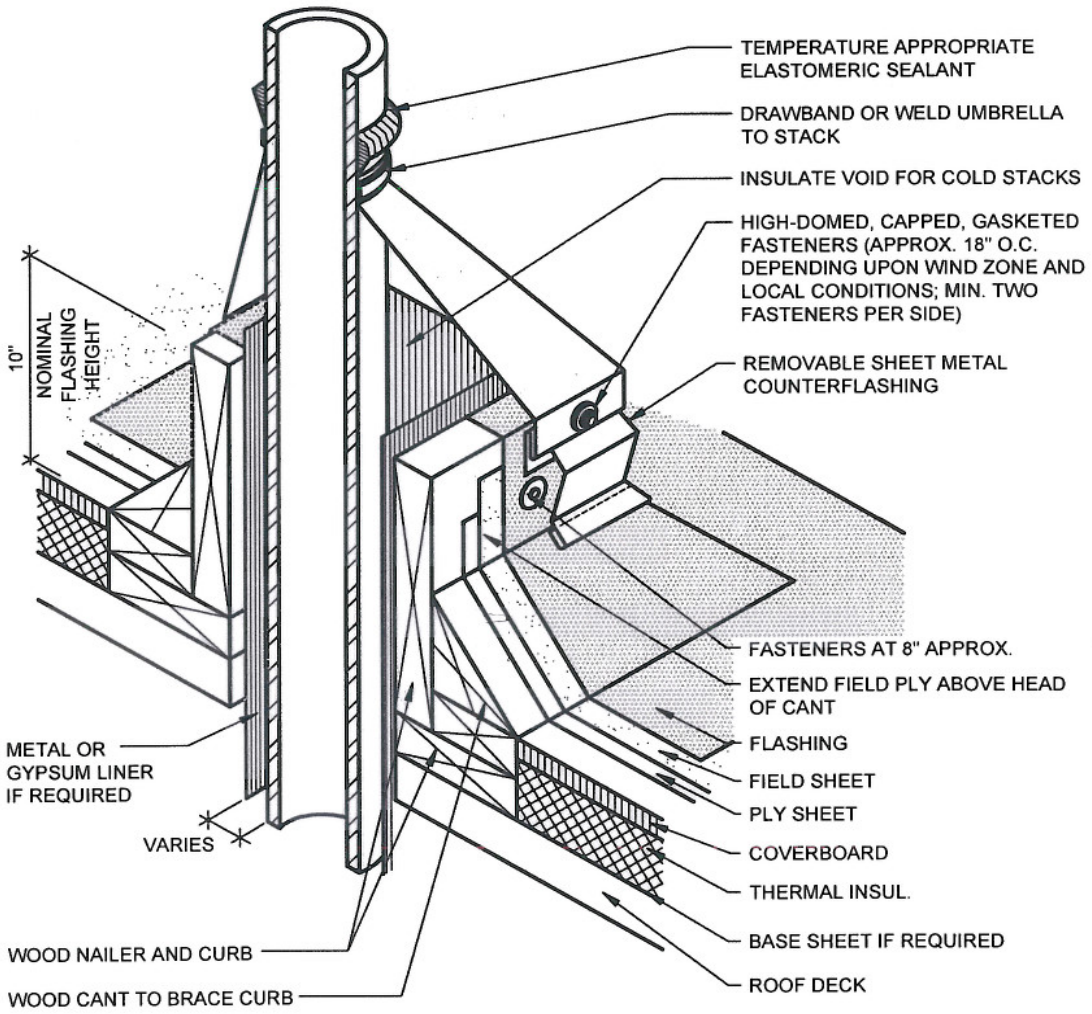
SCALE : NOT TO SCALE | DATE: 06/04/2020 | DRAWN BY: CB



06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

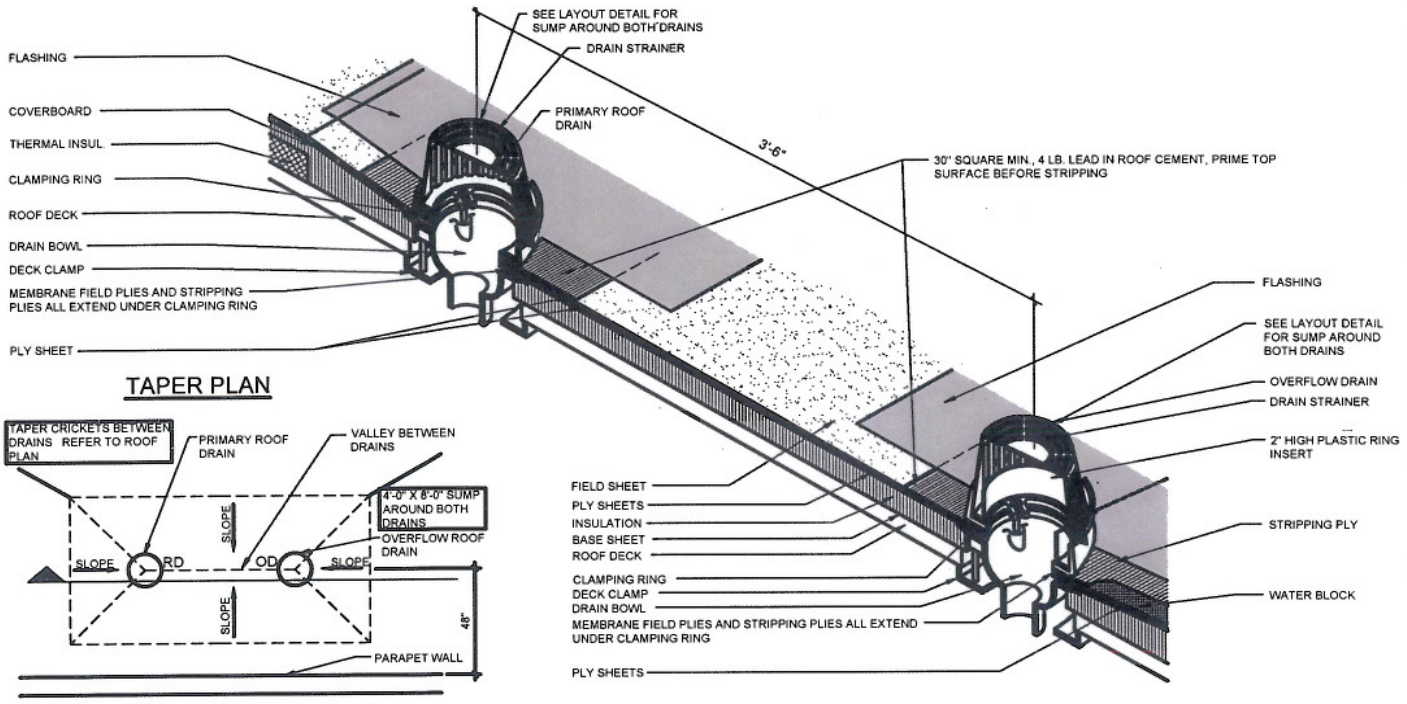
PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.09
DETAIL NAME: ROOF HATCH		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.10
DETAIL NAME: HOT STACK		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



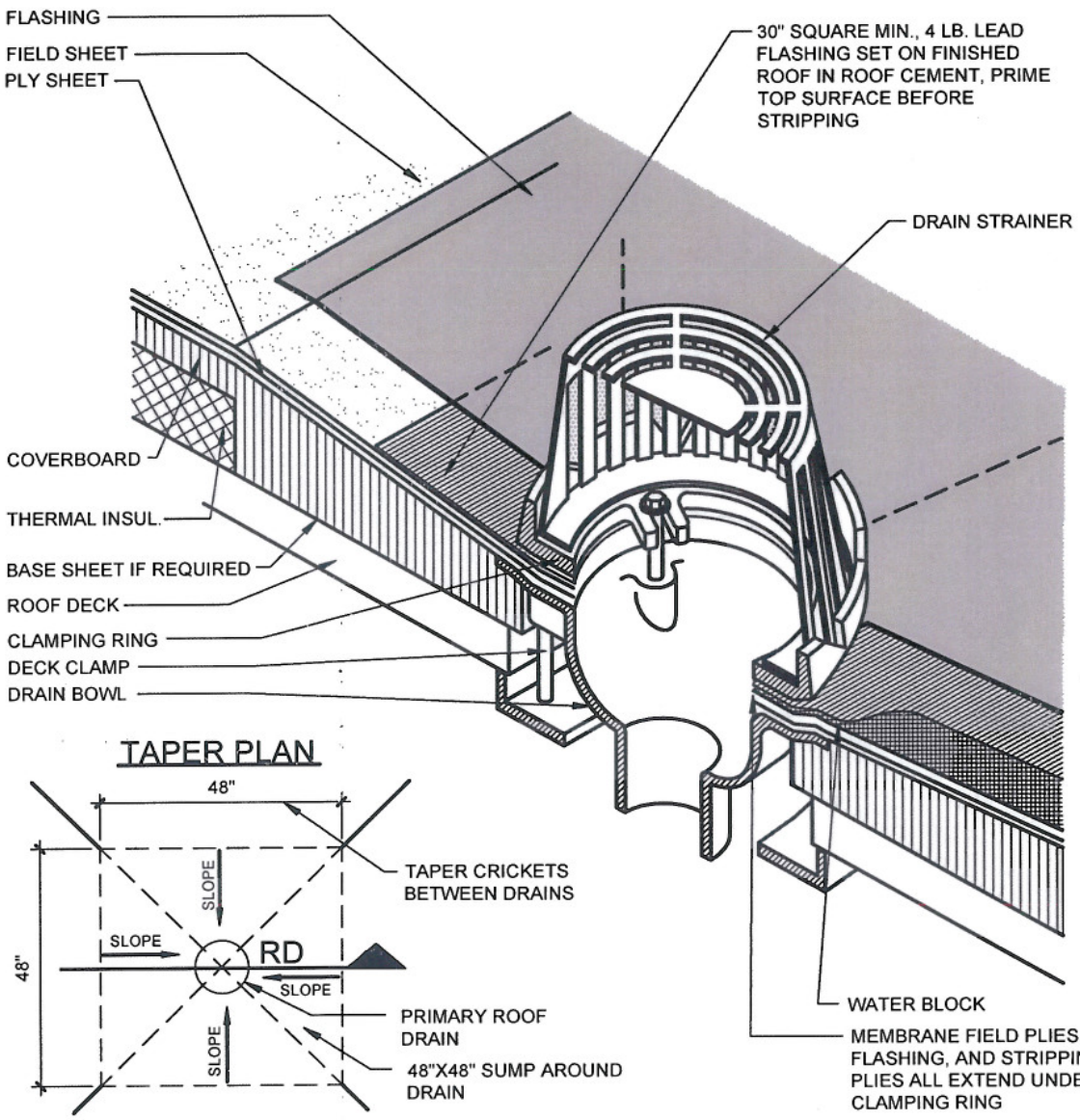
TAPER PLAN

STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED
PROFESSIONAL ENGINEER

06/04/2020

ARMKO INDUSTRIES, INC.
Texas Registered Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.11
DETAIL NAME: PRIMARY AND SECONDARY ROOF DRAINS		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



TAPER PLAN

06/04/2020

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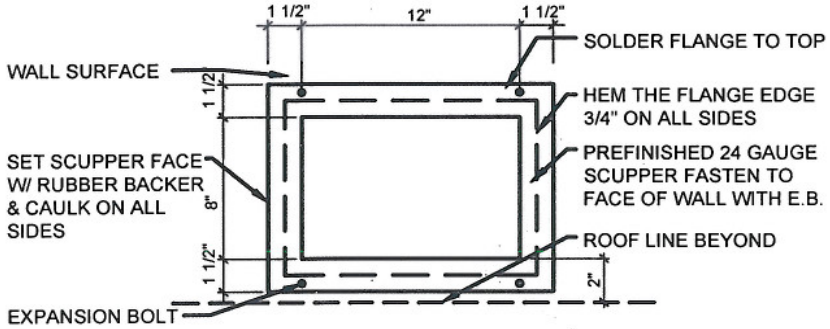
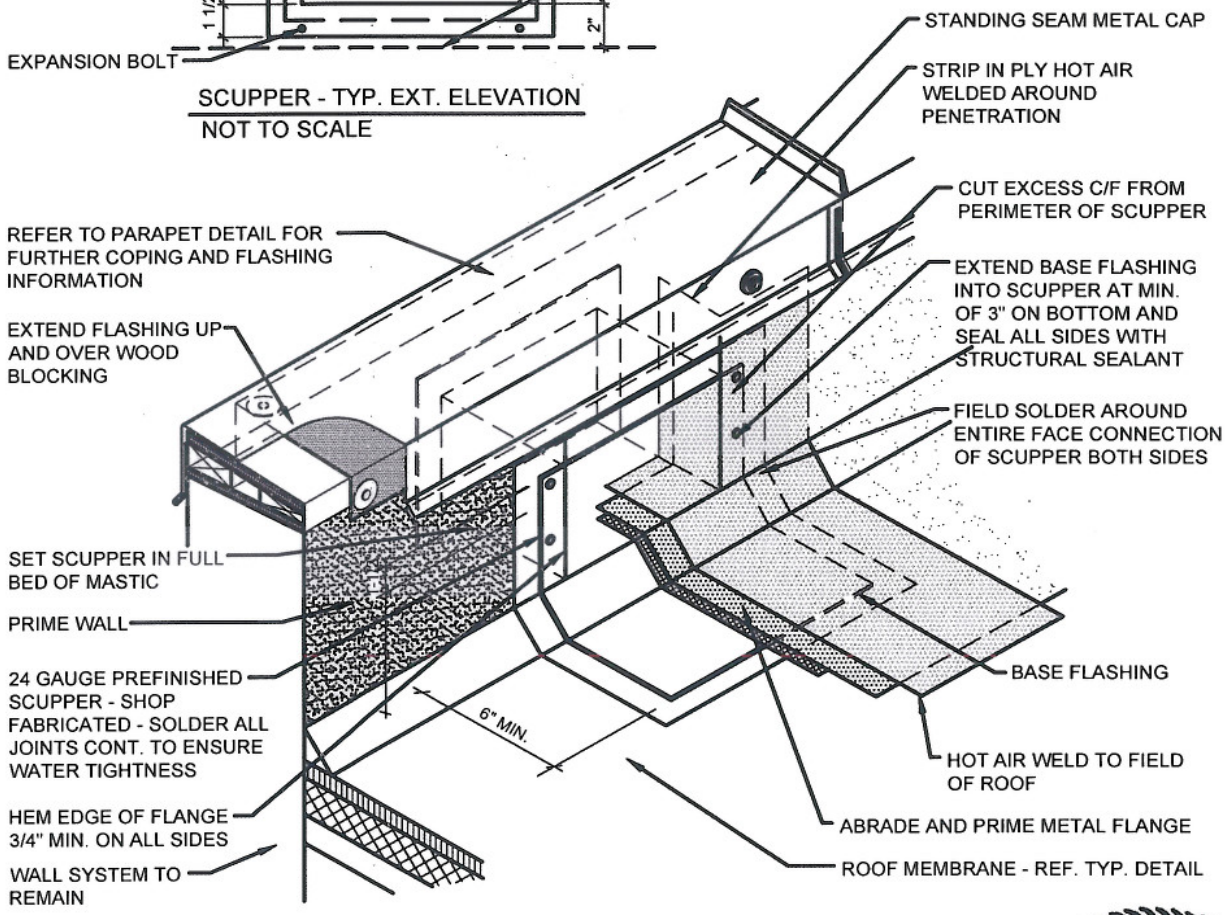
1(888)874-1388

PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.12
DETAIL NAME: PRIMARY ROOF DRAIN		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



SCUPPER - TYP. EXT. ELEVATION
NOT TO SCALE



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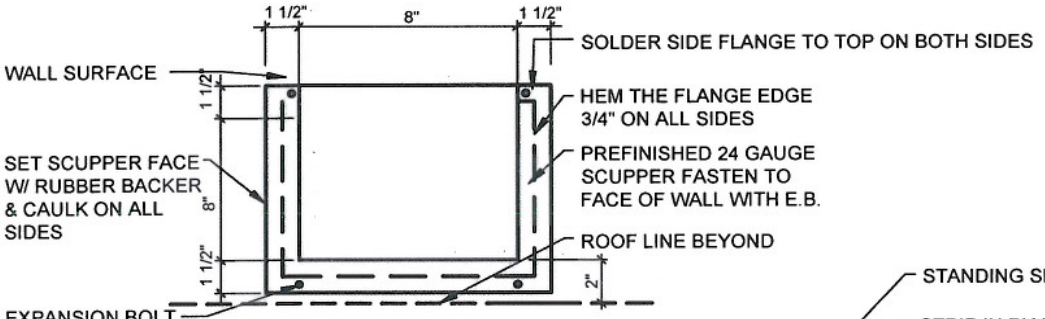
DETAIL NAME: OVERFLOW SCUPPER	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE | DATE: 06/04/2020	DRAWN BY: CB



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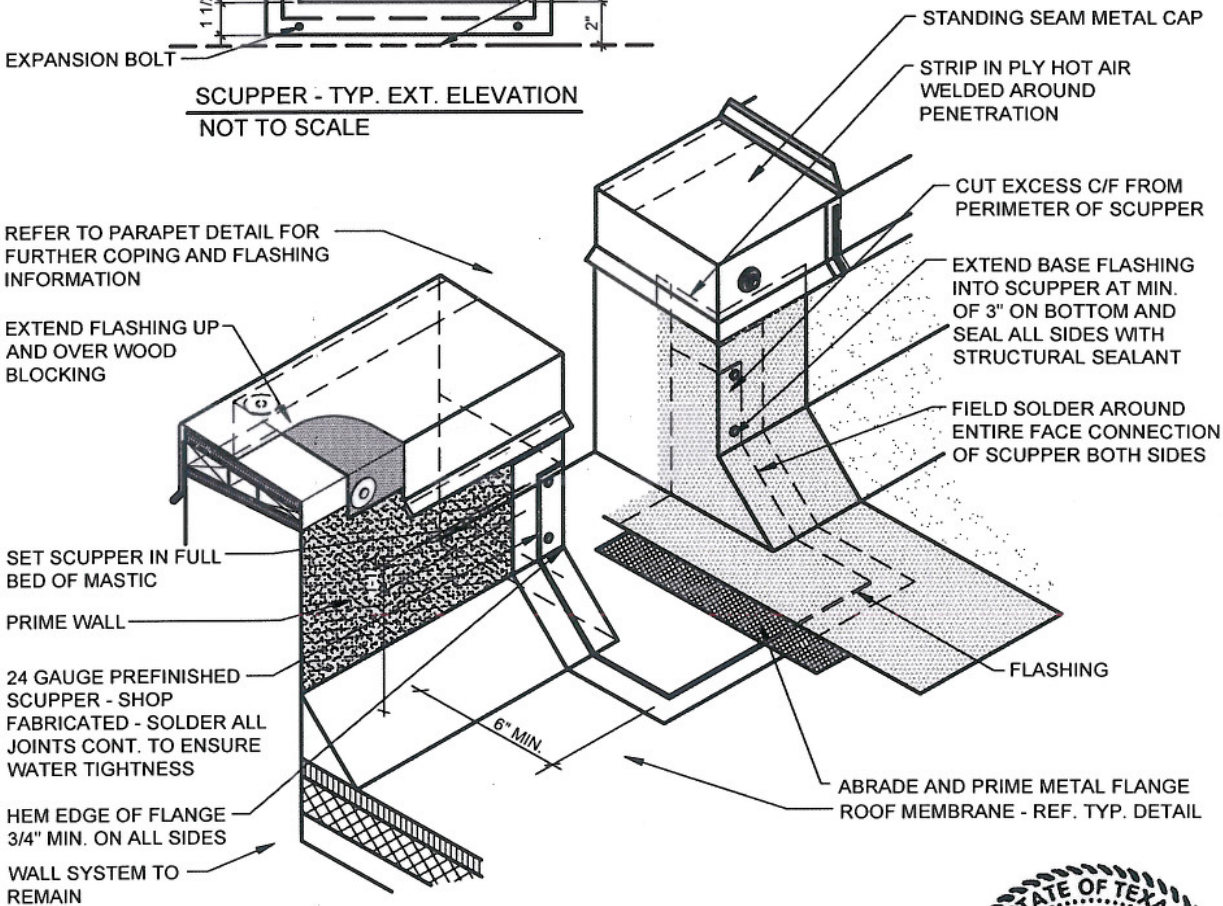
NOT TO SCALE



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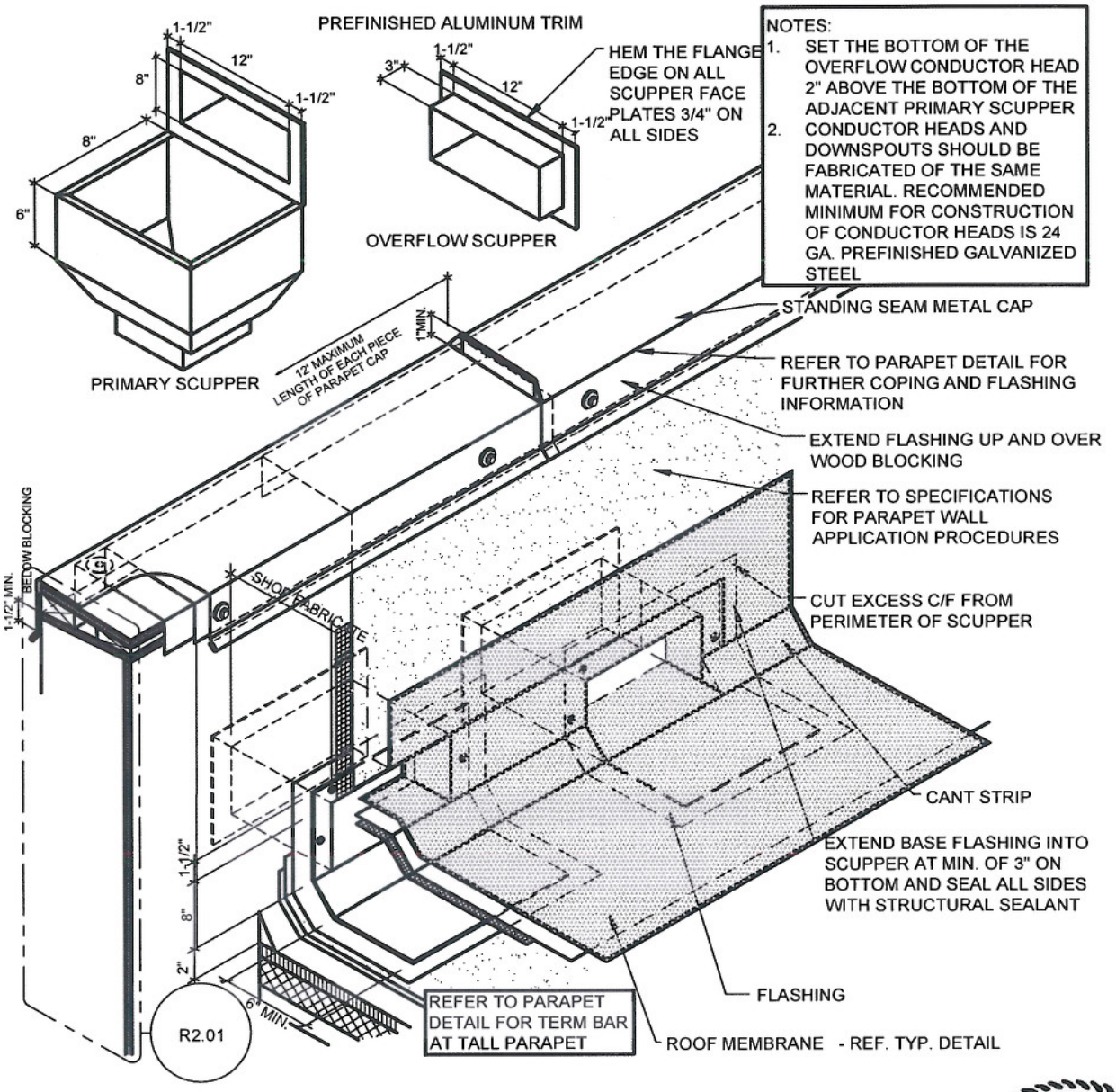
DETAIL NAME: PRIMARY OPEN TOP SCUPPER AT MISSOURI CITY BRANCH LIB.		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



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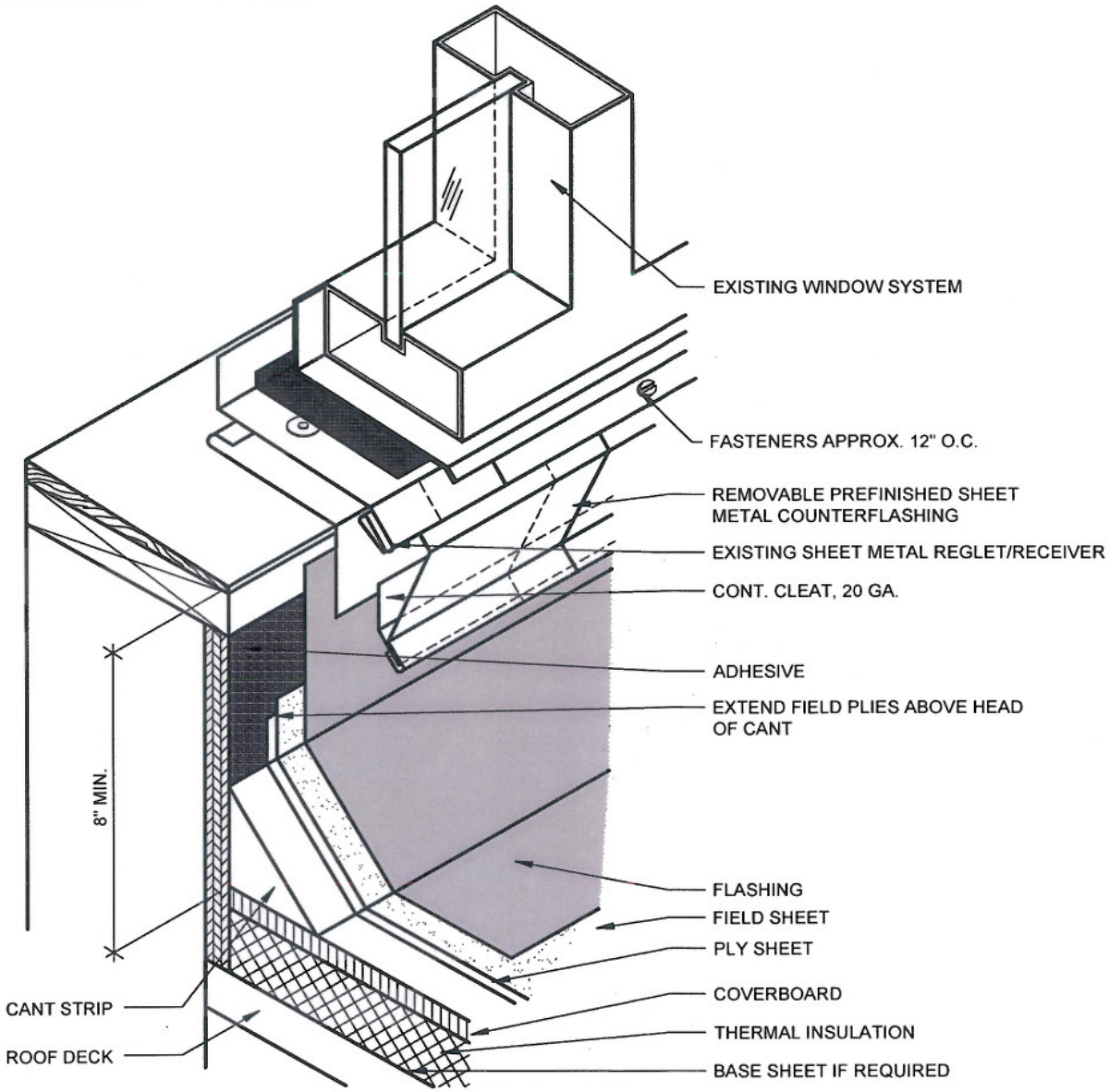
DETAIL NAME: PRIMARY AND SECONDARY SCUPPERS	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE | DATE: 06/04/2020	DRAWN BY: CB



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Houston, TX 77450
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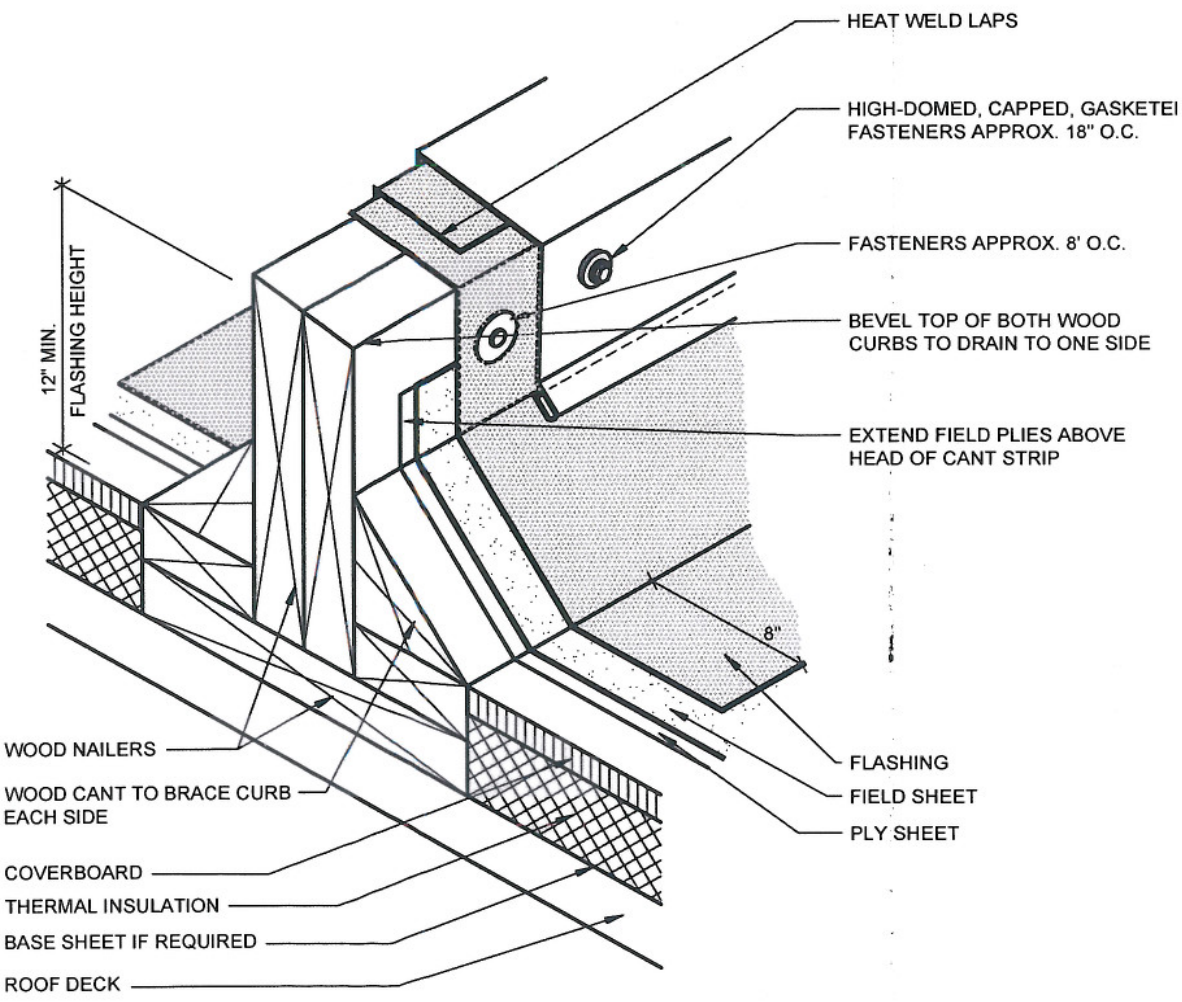
DETAIL NAME: RISEWALL AT WINDOW	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE | DATE: 06/04/2020 | DRAWN BY: CB	



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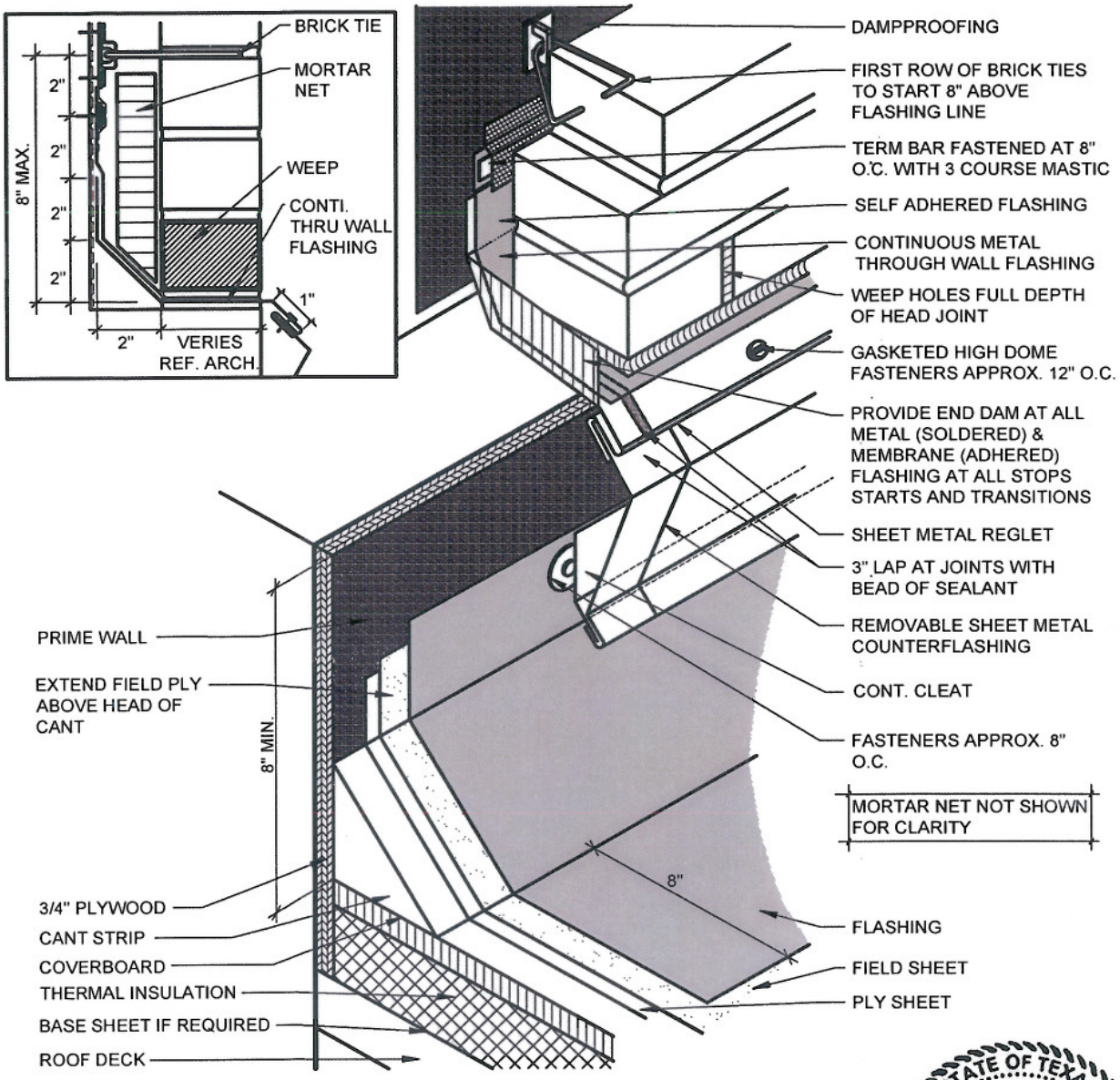
PROJECT FOR: # B20-088 FORT BEND COUNTY
CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES,
FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB
KATY, TEXAS

R2.17

DETAIL NAME: EQUIPMENT CURB

PROJECT NO: 19-1378-42 | 100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE | DATE: 06/04/2020 | DRAWN BY: CB



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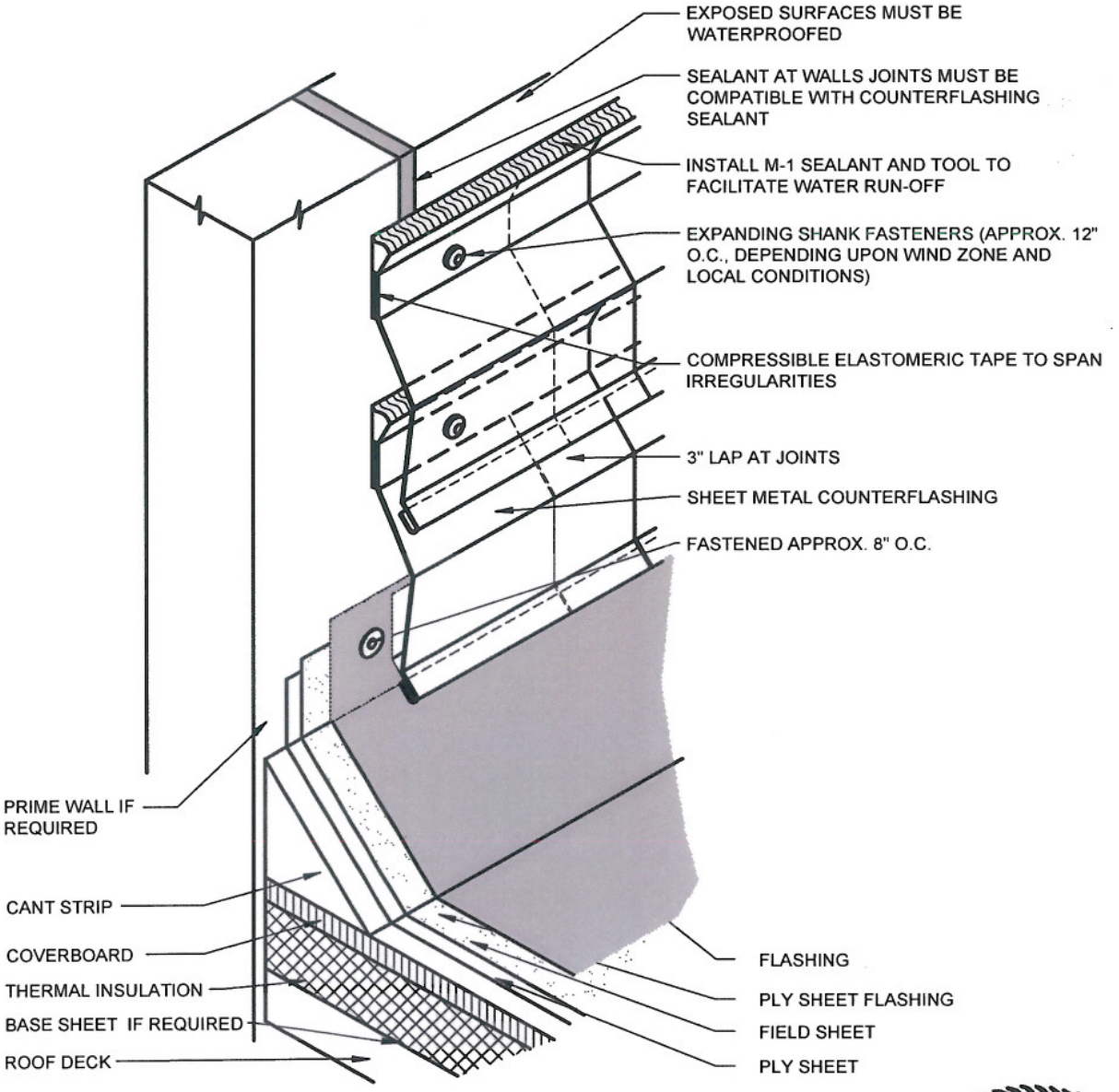
PROJECT FOR: # B20-088 FORT BEND COUNTY
CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES,
FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB
KATY, TEXAS

R2.18

DETAIL NAME: MASONRY RISEWALL

PROJECT NO: 19-1378-42 | 100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE | DATE: 06/04/2020 | DRAWN BY: CB



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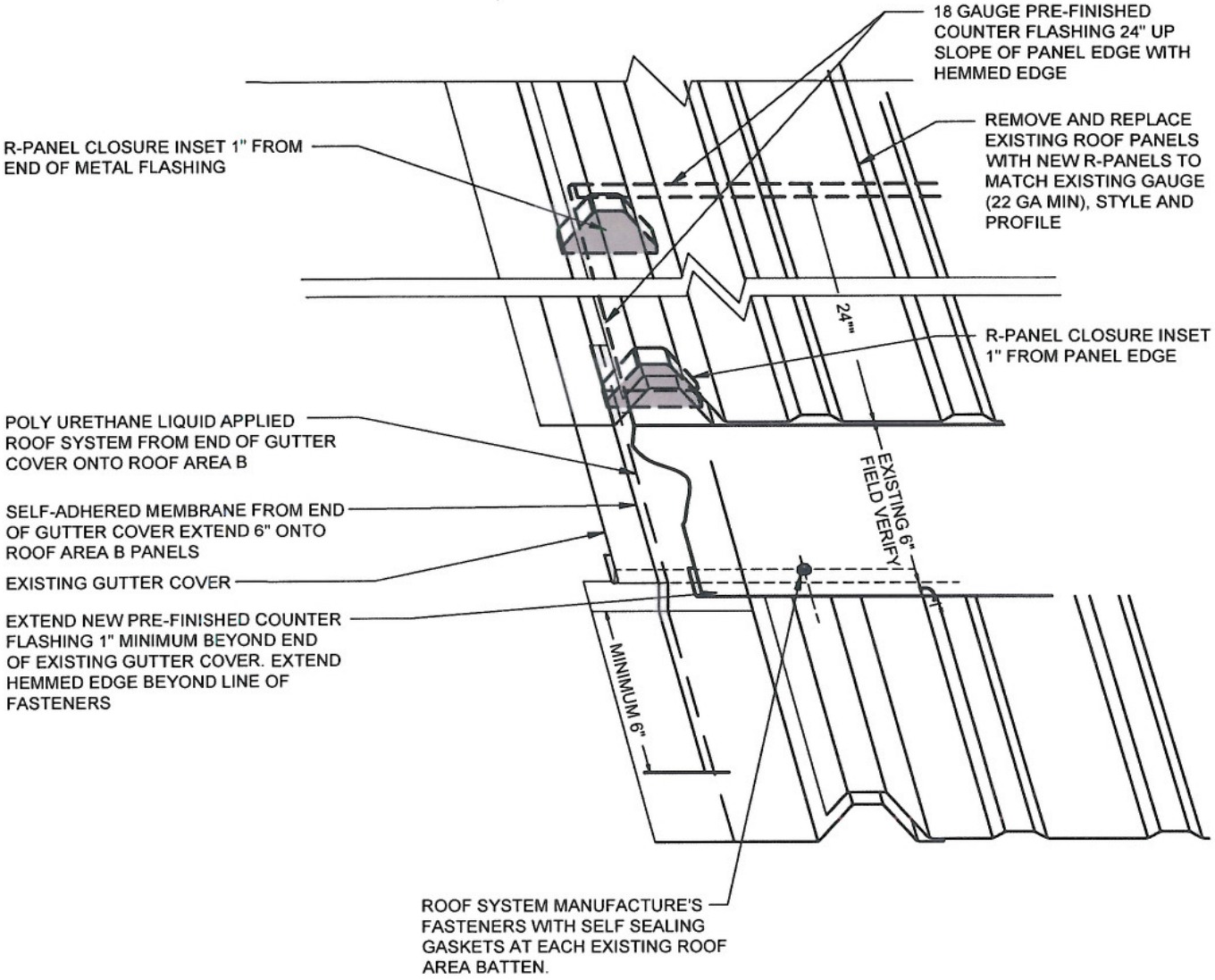
PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS		R2.19
DETAIL NAME: DOUBLE SURFACE MOUNTED FLASHING		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



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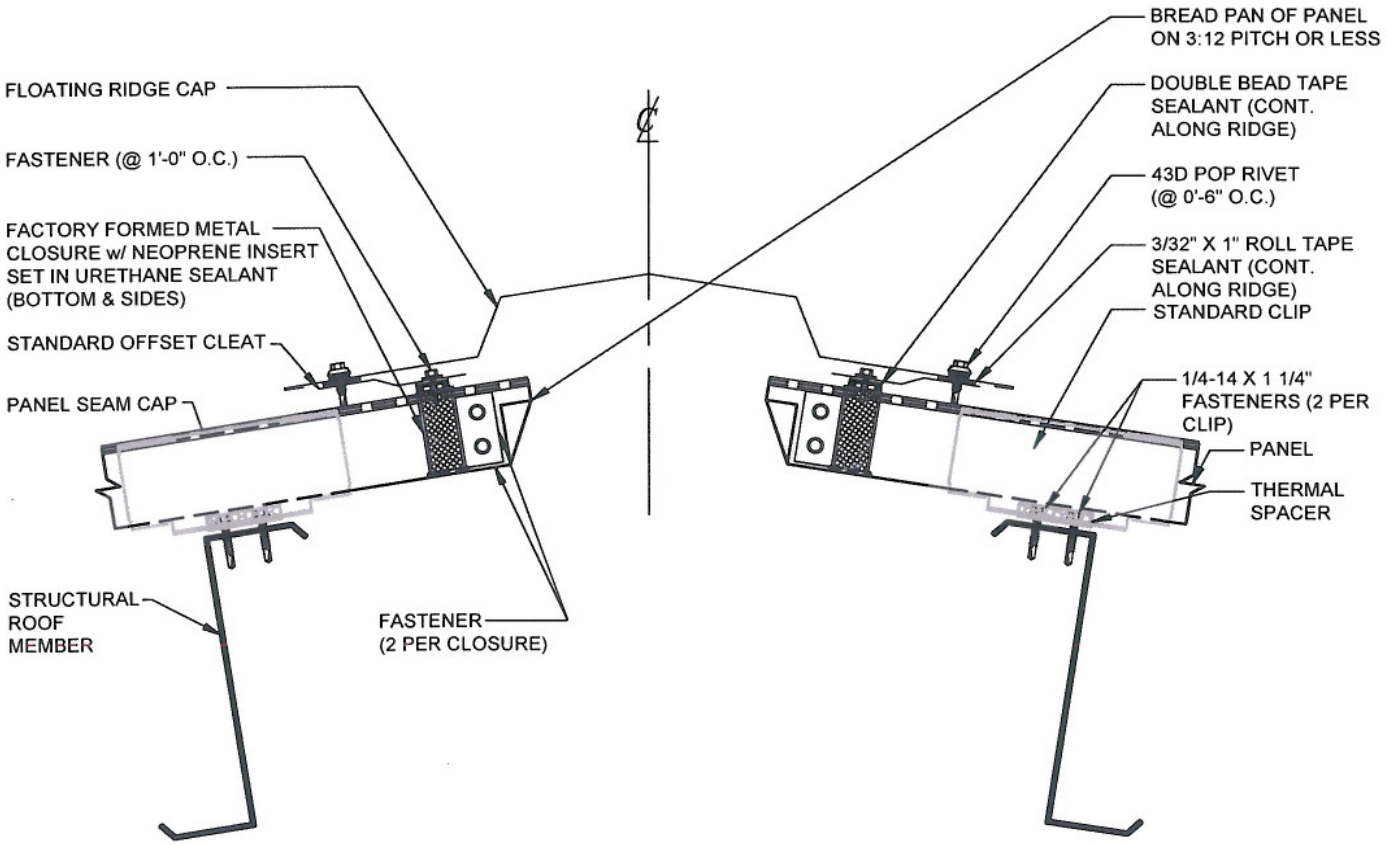
DETAIL NAME: TRANSITION		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



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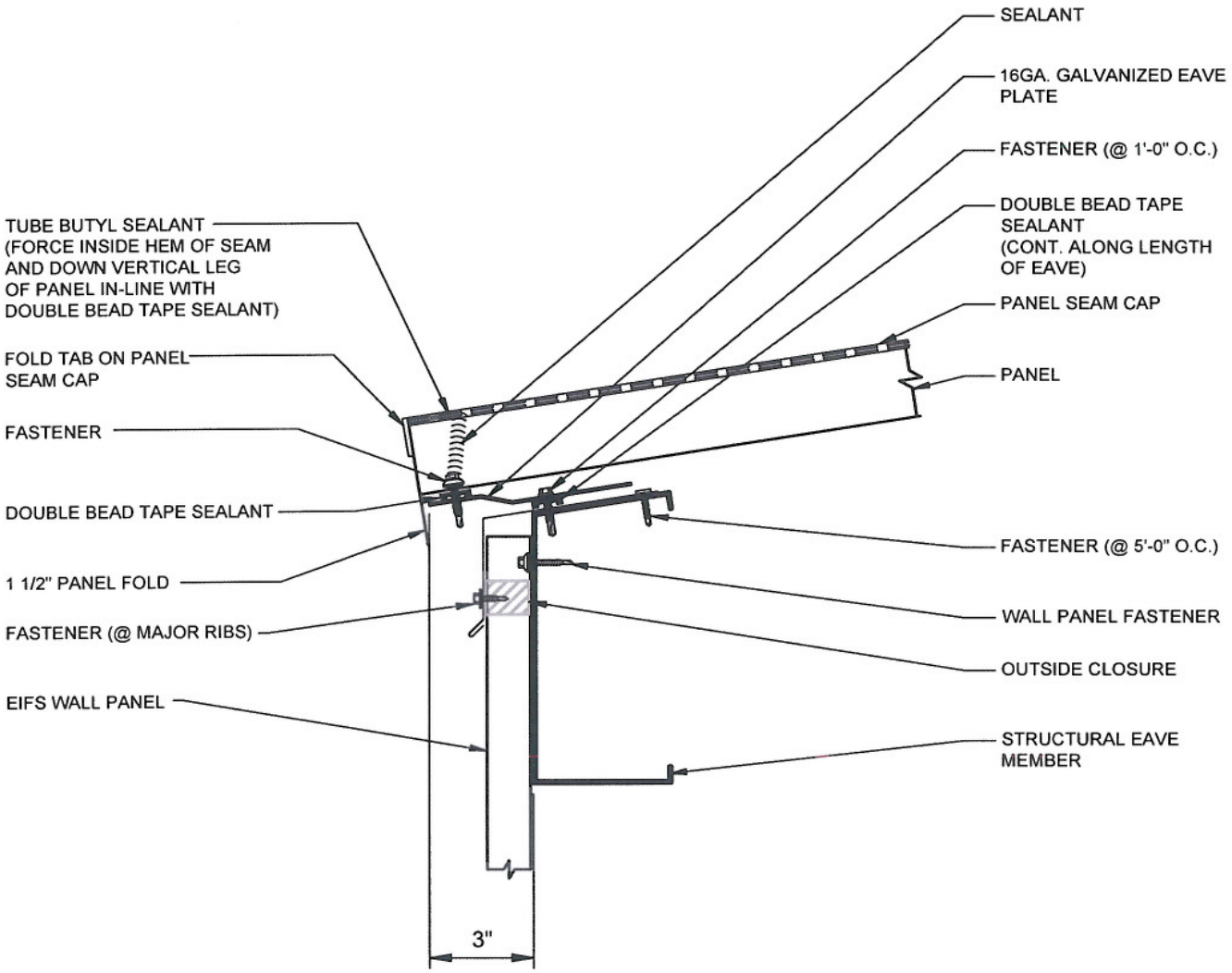
DETAIL NAME: FLOATING RIDGE	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE	DATE: 06/04/2020 / DRAWN BY: CB



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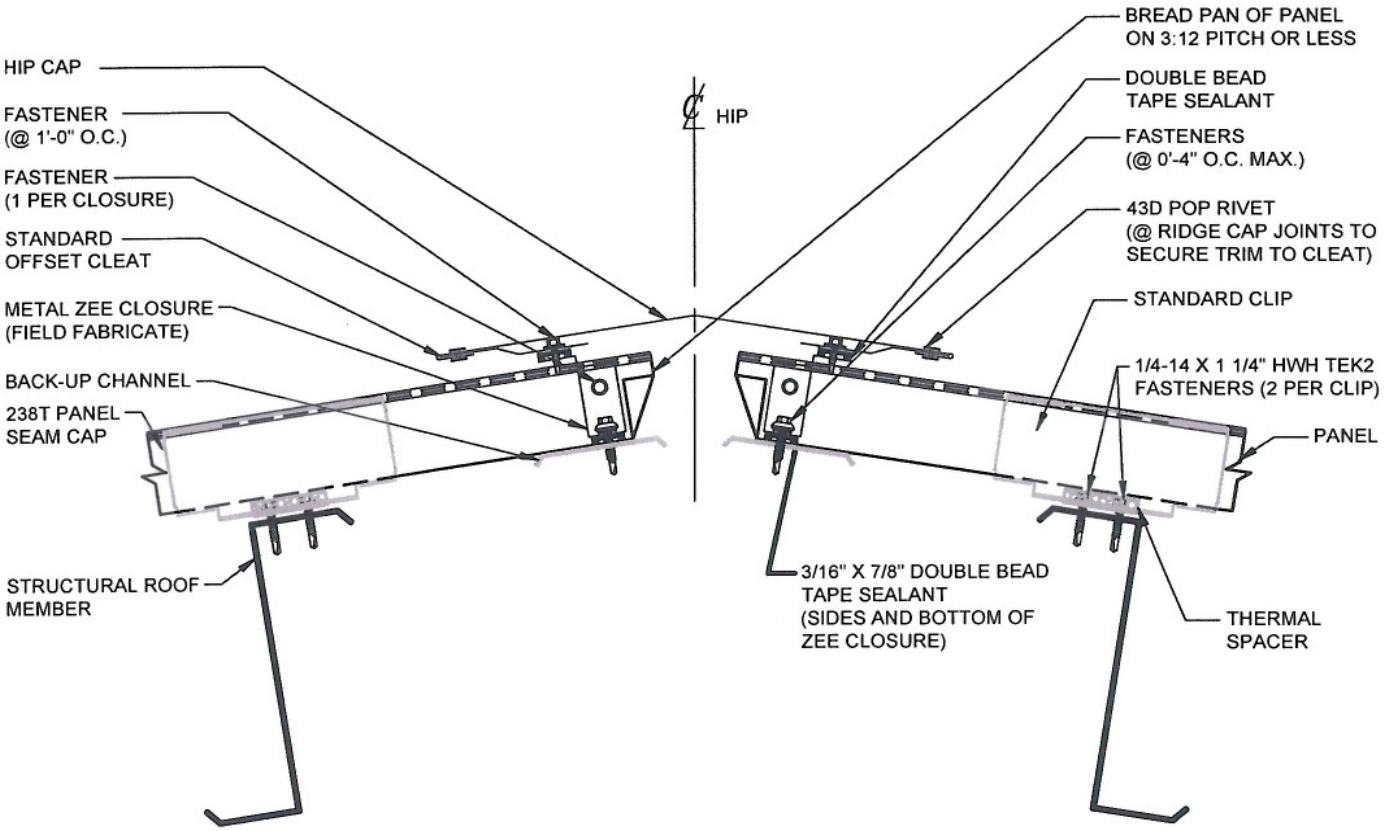
DETAIL NAME: EAVE		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



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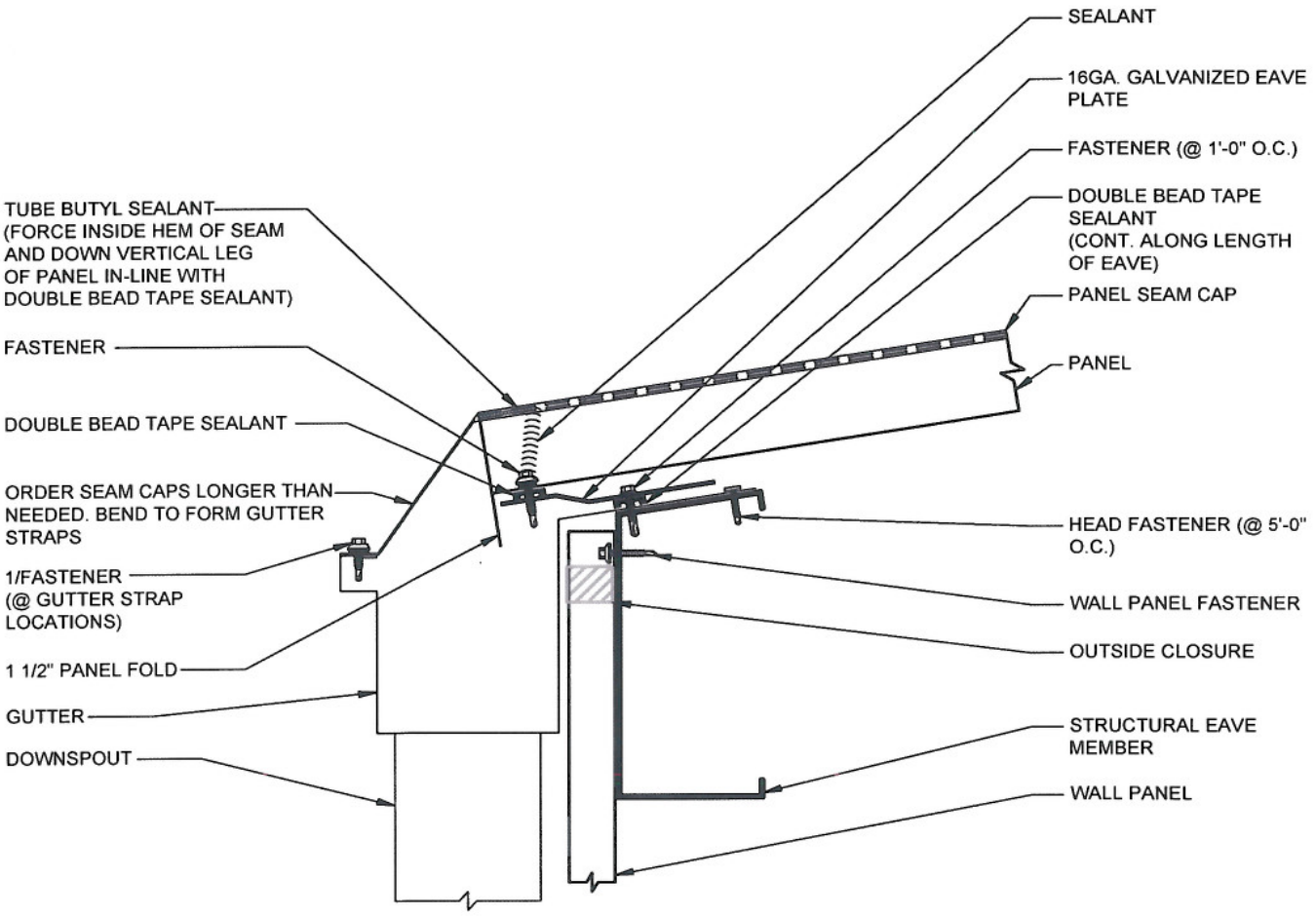
PROJECT FOR: # B20-088 FORT BEND COUNTY CINCO RANCH, LUTTS, MISSOURI, SUGAR LAND BRANCH LIBRARIES, FIFTH STREET COMMUNITY CENTER & BOYS AND GIRLS CLUB KATY, TEXAS	R2.23
DETAIL NAME: HIP	
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS
SCALE : NOT TO SCALE	DATE: 06/04/2020 / DRAWN BY: CB



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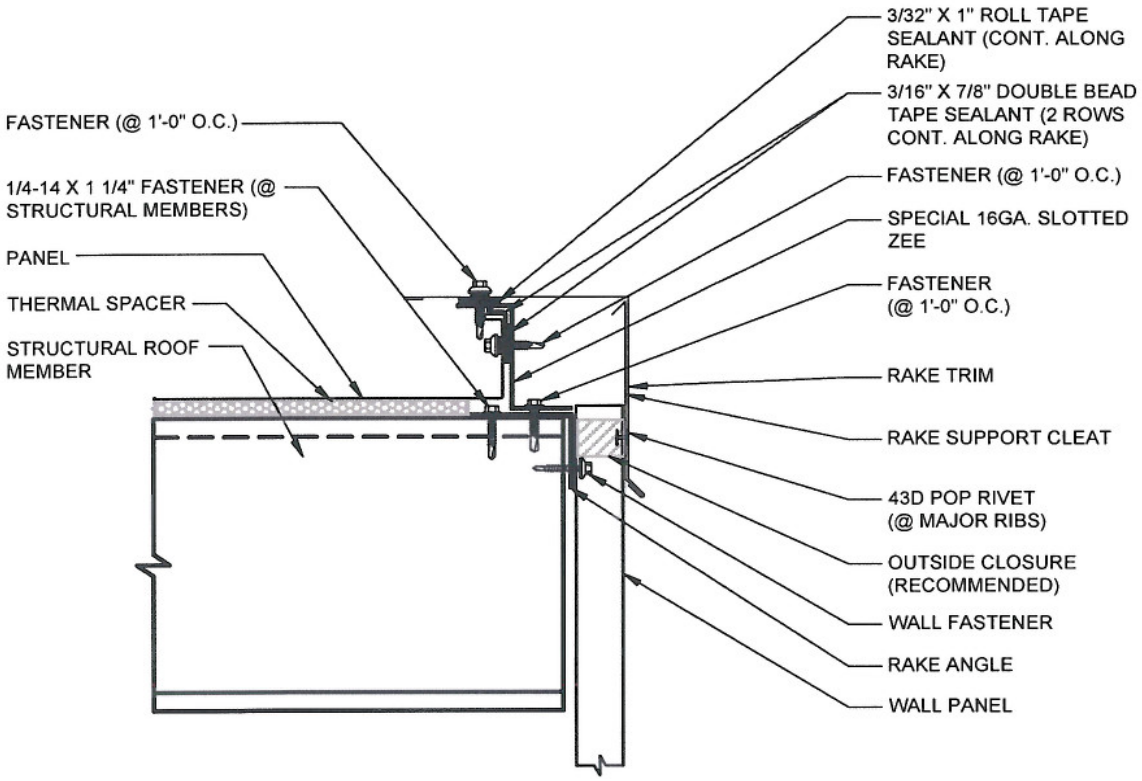
DETAIL NAME: METAL EDGE GUTTER		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



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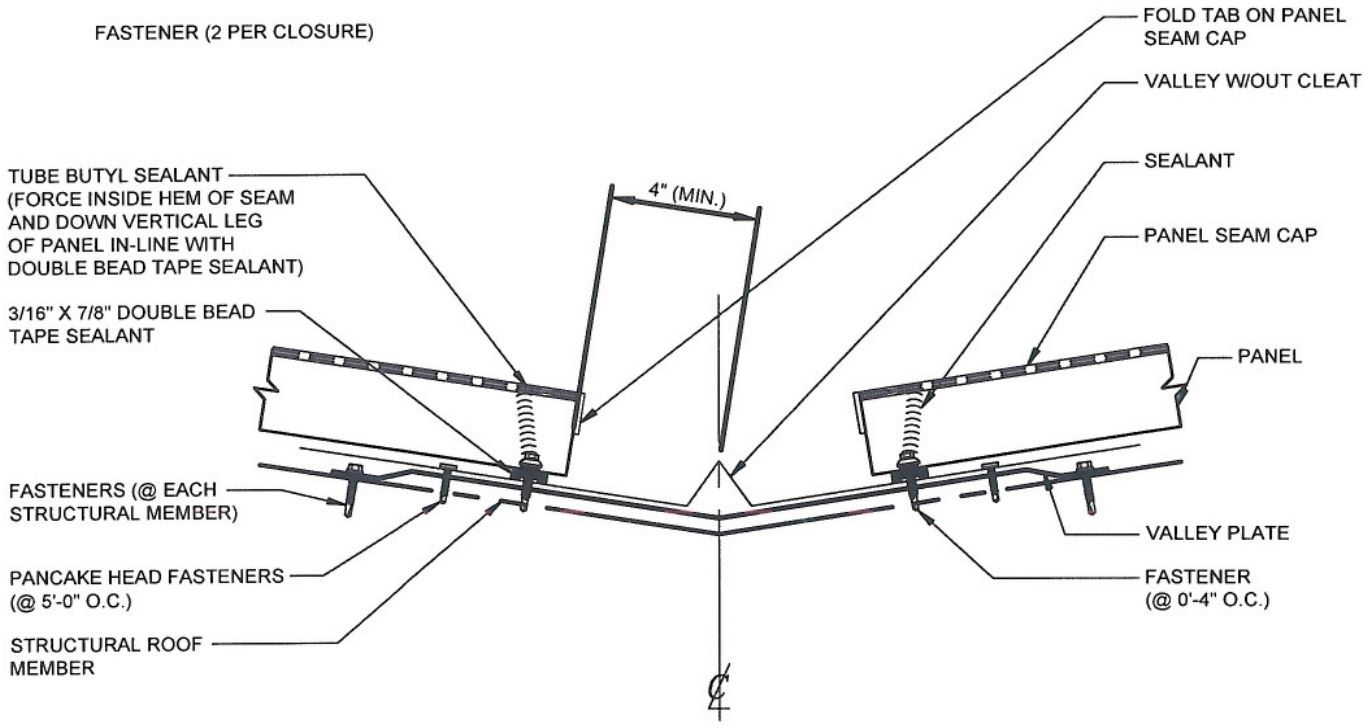
DETAIL NAME: RAKE EDGE		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB



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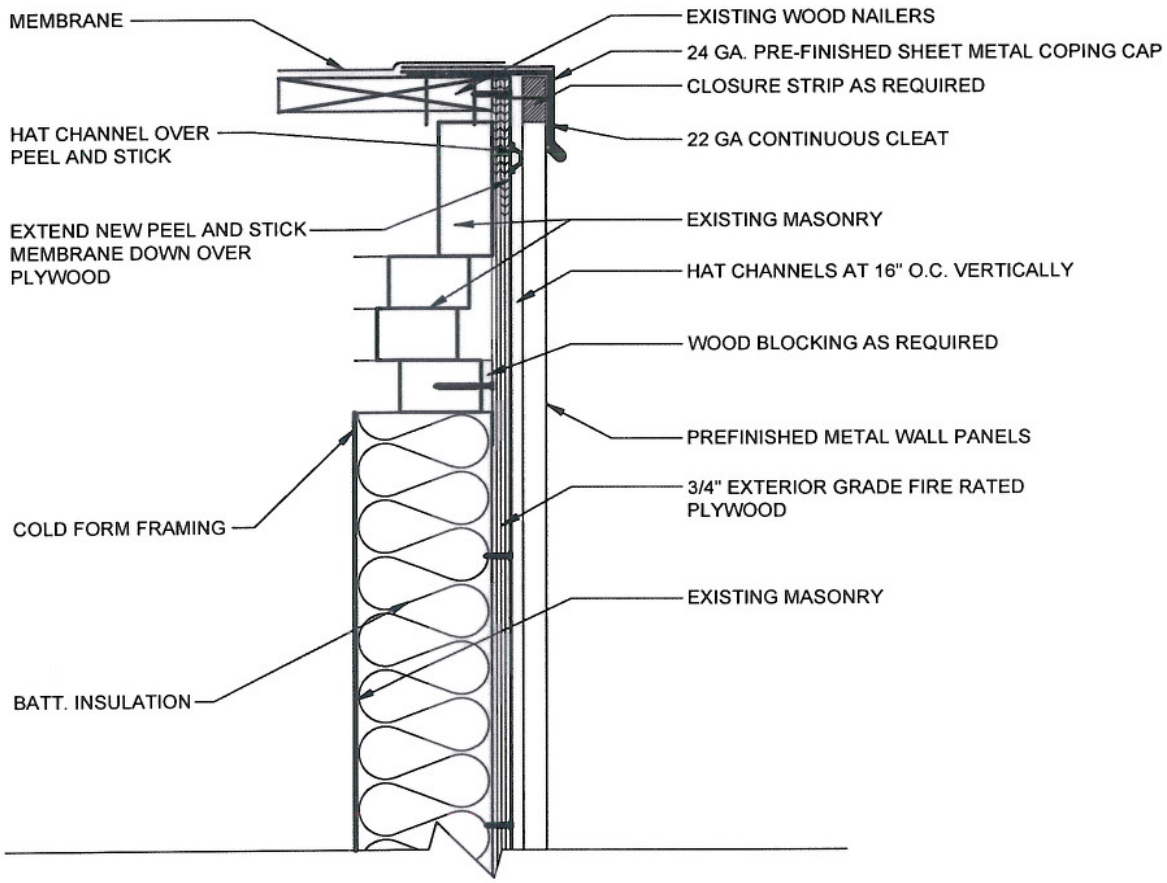
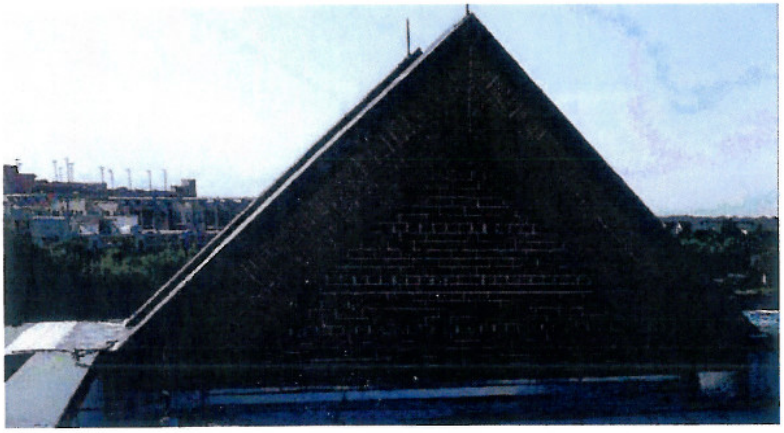
DETAIL NAME: VALLEY		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB





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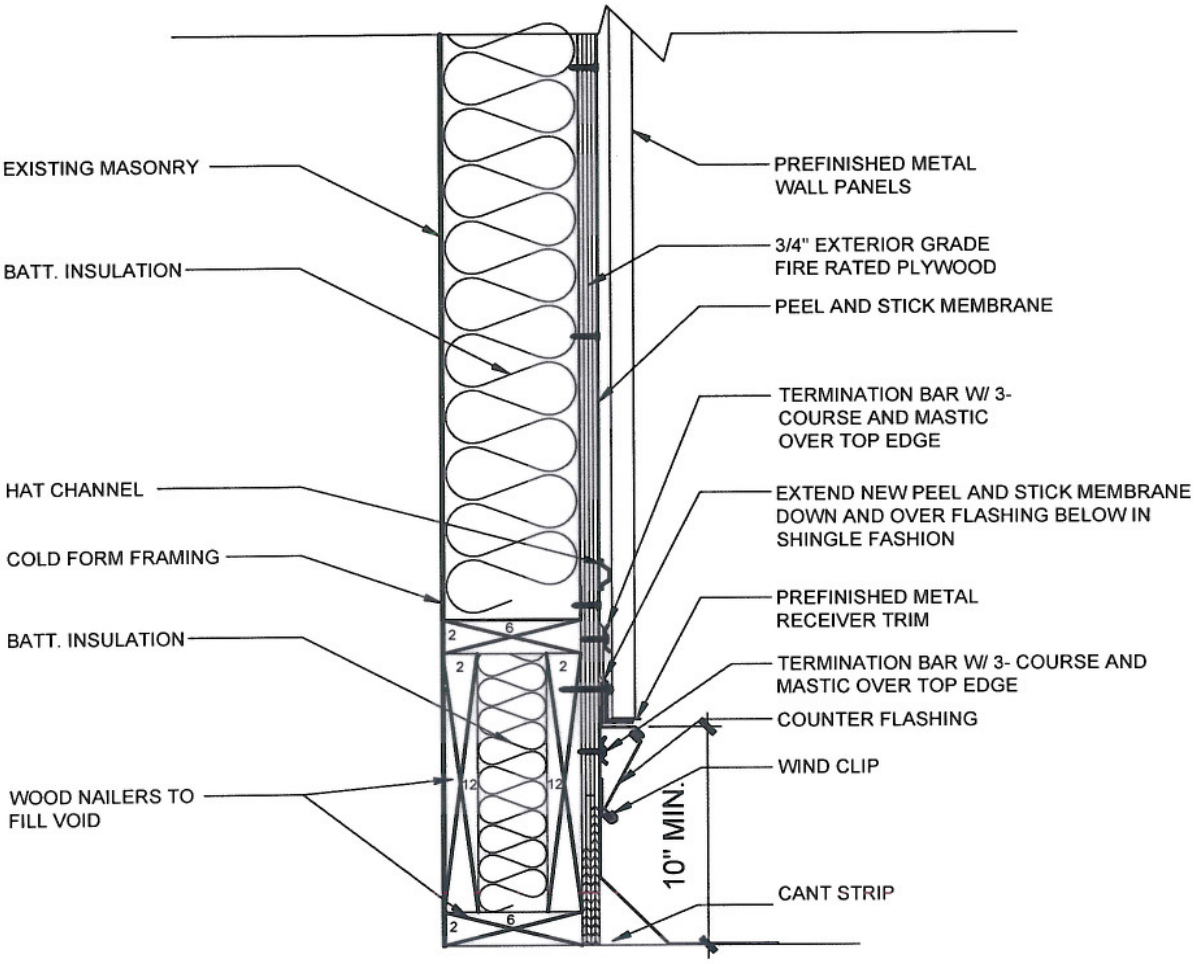
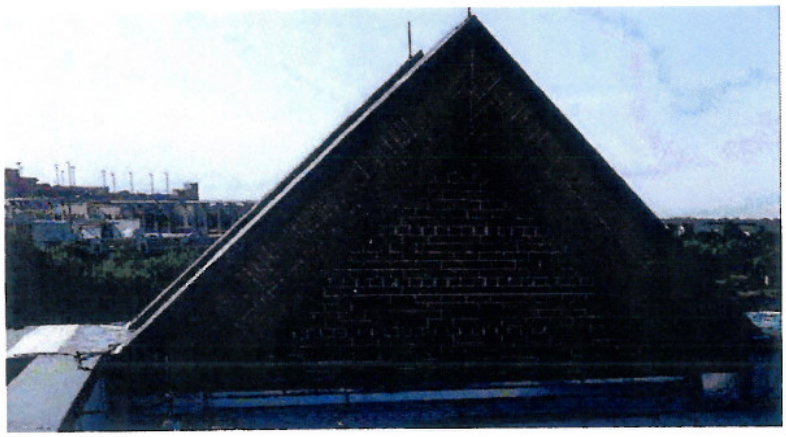
DETAIL NAME: SURFACE MOUNTED FLASHING - TOP		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB





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DETAIL NAME: SURFACE MOUNTED FLASHING - BOTTOM		
PROJECT NO: 19-1378-42	100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 06/04/2020	DRAWN BY: CB

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2020-640248

Date Filed:
07/06/2020

Date Acknowledged:
07/28/2020

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

Gutier LLC
Sugar Land, TX United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

Fort Bend County, TX

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

B20-088
Roof Replacement Projects

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
Gutier LLC	Sugar Land, TX United States	X	

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

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

Executed in _____County, State of _____, on the _____day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)