

**Fort Bend County, Texas
Request for Proposals**



**Roof Replacement Project at Jane Long Annex for Fort Bend County
RFP 22-073**

SUBMIT PROPOSALS TO:

Fort Bend County
Purchasing Department
Travis Annex
301 Jackson, Suite 201
Richmond, TX 77469

****NOTE:**

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

SUBMIT NO LATER THAN:

Tuesday, May 3, 2022
2:00 PM (Central)

MARK ENVELOPE:

RFP 22-073
Roof Replacement at Jane Long Annex

***ALL SUBMITTALS MUST BE RECEIVED AND TIME/DATE STAMPED BY THE PURCHASING OFFICE
OF FORT BEND COUNTY ON OR BEFORE THE SPECIFIED TIME/DATE STATED ABOVE.***

SUBMITTALS RECEIVED AS REQUIRED WILL THEN BE OPENED AND THE NAMES PUBLICLY READ.

SUBMITTALS 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 Commissioners Court award.

Requests for information must be in
writing and directed to:
Jaime Kovar
County Purchasing Agent
Jaime.kovar@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.



COUNTY PURCHASING AGENT
Fort Bend County, Texas

Vendor Information

Jaime Kovar
Purchasing Agent

Office (281) 341-8640

Legal Company Name (top line of W9)														
Business Name (if different from legal name)														
Federal ID # or S.S. #			DUNS #											
Type of Business	<input type="checkbox"/> Corporation/LLC <input type="checkbox"/> Partnership <input type="checkbox"/> Sole Proprietor/Individual <input type="checkbox"/> Tax Exempt Organization		Age in Business?											
Publicly Traded Business	<input type="checkbox"/> No <input type="checkbox"/> Yes Ticker Symbol _____													
Remittance Address														
City/State/Zip														
Physical Address														
City/State/Zip														
Phone/Fax Number	Phone: _____ Fax: _____													
Contact Person														
E-mail														
Check all that apply to the company listed above and provide certification number.	DBE-Disadvantaged Business Enterprise <input type="checkbox"/> SBE-Small Business Enterprise <input type="checkbox"/> HUB-Texas Historically Underutilized Business <input type="checkbox"/> WBE-Women's Business Enterprise <input type="checkbox"/>		Certification # _____ Certification # _____ Certification # _____ Certification # _____	<table border="1"> <tr> <th><u>Cert Date</u></th> <th><u>Exp Date</u></th> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> </table>	<u>Cert Date</u>	<u>Exp Date</u>	_____	_____	_____	_____	_____	_____	_____	_____
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Company's gross annual receipts	<input type="checkbox"/> <\$500,000 _____ <input type="checkbox"/> \$5,000,000-\$16,999,999 _____ <input type="checkbox"/> >\$22,400,000 _____		<input type="checkbox"/> \$500,000-\$4,999,999 _____ <input type="checkbox"/> \$17,000,000-\$22,399,999 _____											
NAICs codes (Please enter all that apply)														
Signature of Authorized Representative														
Printed Name														
Title														
Date														

THIS FORM MUST BE SUBMITTED WITH THE SOLICITATION RESPONSE

1.0 SCOPE OF WORK:

Fort Bend County, Texas (hereafter referred to as the “County”) seeks Proposals (“Proposals or RFP”) for selection of a Contractor (“Respondent”) to complete a roof replacement at Jane Long Annex, 500 Liberty Street, Richmond, TX 77469, as detailed herein.

2.0 GUIDELINES:

By virtue of submitting a proposal, interested parties are acknowledging:

- 2.1 The County reserves the right to reject any or all proposals if it determines that select proposals are not responsive to the RFP. The County reserves the right to reconsider any proposal submitted at any phase of the procurement. It also reserves the right to meet with select Respondents at any time to gather additional information. Furthermore, the County reserves the right to delete or add scope up until the final contract signing.
- 2.2 All Respondents submitting proposals agree that their pricing is valid for a minimum of ninety (90) days after proposal submission to the County. Furthermore, the County is by statute exempt from the State Sales Tax and Federal Excise Tax; therefore, proposal prices shall not include taxes.
- 2.3 This Proposal does not commit the County to award nor does it constitute an offer of employment or a contract for services. Costs incurred in the submission of this proposal, or in making necessary studies or designs for the preparation thereof, are the sole responsibility of the Respondents. Further, no reimbursable cost may be incurred in the anticipation of award. Proposals containing elaborate artwork, expensive paper and binding and expensive visual or other presentations are neither necessary nor desired.
- 2.4 In an effort to maintain fairness in the process, all inquiries concerning this procurement are to be directed only to the County’s Purchasing Agent in writing. Attempts to contact any members of the County’s Commissioners’ Court or any other County employee to influence the procurement decision may lead to immediate elimination from further consideration.
- 2.5 When responding to this Proposal, follow all instructions carefully. Submit proposal contents according to the outline specified and submit all hard copy and electronic documents according to the instructions. Failure to follow these instructions may be considered a non-responsive proposal and may result in immediate elimination from further consideration.

3.0 PROPOSAL CONTACT:

This Proposal is being issued by the County Purchasing Agent on behalf of Fort Bend County, Texas. Thus, responses should be directed to the Purchasing Agent, as outlined below.

Respondents are specifically directed NOT to contact any County personnel for meetings, conferences or technical discussions that are related to this Proposal other than specified herein. Unauthorized contact of any County personnel will likely be cause for rejection of the Respondent's proposal. All communications regarding the Proposal shall be directed to the County's Proposal Contact. Communication with the Proposal Contact is permitted via email, facsimile, or written correspondence.

PROPOSAL CONTACT:

Jaime Kovar
County Purchasing Agent
Fort Bend County Travis Annex
301 Jackson, Suite 201
Richmond, Texas 77469
Jaime.Kovar@fortbendcountytexas.gov
Ph: 281.341.3724

4.0 SUBMISSION REQUIREMENTS:

- 4.1 Submission requirements: one (1) original proposal is required by RFP opening time of 2:00 PM on Tuesday, May 3, 2022. Four (4) paper copies and one (1) electronic response on CD or flash drive are required to be submitted to Purchasing by 9:00 AM on Wednesday, May 4, 2022. CD or flash drive must contain only one (1) file in PDF format and must match written response identically. Failure to provide proper CD or flash drive is cause for disqualification. Proposal shall be submitted to the address shown below. Proposal shall be signed, in ink, by a person having the authority to bind the firm in a contract.

Fort Bend County	Proposal Number: R22-073
Purchasing Department	Due Date: Tuesday, May 3, 2022
301 Jackson, Suite 201	Time: 2:00 PM (CST)
Richmond, Texas 77469	For: Roof Replacement at Jane Long Annex

- 4.2 Respondents may submit their proposal any time prior to the Opening Date and time. The Respondent's name and address as well as a distinct reference to the Proposal number above shall be marked clearly on the submission. All proposals are time-stamped upon receipt and are securely kept, unopened, until the Opening Date. No responsibility will attach to the County, or any official or employee thereof, for the pre-opening of, post-opening of, or the failure to open a proposal not properly addressed and identified. No oral, telegraphic, telephonic, or facsimile proposals will be considered.
- 4.3 Proposals may be modified or withdrawn prior to the established opening date by delivering written notice to the proposal contact. Any alteration made prior to opening date and time shall be initialed by the signer of the proposal, guaranteeing authenticity.

- 4.4 Proposals time-stamped after the due date and time will not be considered and will be returned to the Respondent unopened. Regardless of the method used for delivery, respondents shall be wholly responsible for the timely delivery of submitted proposals.
- 4.5 The Respondent's name and address shall be clearly marked on all copies of the proposal.

5.0 INCURRED COSTS:

Those submitting proposals do so entirely at their expense. There is no expressed or implied obligation by the County to reimburse any individual or firm for any costs incurred in preparing or submitting proposals, for providing additional information when requested by the County or for participating in any selection interviews, including discovery (pre-contract negotiations) and contract negotiations.

6.0 ACCEPTANCE:

- 6.1 Submission of any proposal indicates a Respondent's acceptance of the conditions contained in this Proposal unless clearly and specifically noted otherwise in their proposal.
- 6.2 Furthermore, the County is not bound to accept a proposal on the basis of lowest price, and further, the County has the sole discretion and reserves the right to cancel this Proposal, to reject any and all proposals, to waive any and all informalities and or irregularities, or to re-advertise with either the identical or revised specifications, if it is deemed to be in the County's best interests. The County reserves the right to accept or reject any or all of the items in the proposal, and to award the contract in whole or in part and/or negotiate any or all items with individual Respondents if it is deemed in the County's best interest.
- 6.3 Although Fort Bend County desires to negotiate toward a contract with a selected Respondent, the Commissioners' Court may award the contract on the basis of the initial proposals received, without discussions. Therefore, each initial proposal should contain the Respondent's best terms.

7.0 INTERPRETATIONS, DISCREPANCIES, AND OMISSIONS:

- 7.1 It is incumbent upon each potential Respondent to carefully examine these specifications, terms, and conditions. Should any potential Respondent find discrepancies, omissions or ambiguities in this Proposal, the Respondent shall at once request in writing an interpretation from the County's Proposal Contact. Any inquiries, suggestions, or requests concerning interpretation, clarification or additional information shall be made in writing via e-mail only to the County's Proposal Contact, as specified in Section 3.0. Deadline for submission of

questions and/or clarification is **Monday, April 25, 2022 at 10:00 AM. (CST)**. Requests received after the deadline will not be responded to due to the time constraints of this Proposal process.

- 7.2 The issuance of a written addendum is the only official method by which interpretation, clarification or additional information will be given by the County. Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarification will be without legal effect. If it becomes necessary to revise or amend any part of this Proposal, notice will be given by the County Purchasing Agent to all prospective Respondents who were sent a Proposal. The Respondent in their proposal shall acknowledge receipts of amendments. Each Respondent shall ensure that they have received all addenda and amendments to this Proposal before submitting their proposals.

8.0 TENTATIVE SCHEDULE:

Release of RFP:	April 10, 2022
Pre-RFP conference:	April 19, 2022, 10:00am (CST)
Deadline for Questions:	April 25, 2022
Submission Due Date:	May 3, 2022
Evaluation of Submissions:	Week of May 9 th , 2022
Commissioners Court Permission to Negotiate:	May 24, 2022
Negotiations:	Beginning May 24, 2022
Final Contract Approval Commissioners Court:	June 14, 2022

9.0 PRE-RFP CONFERENCE:

A Pre-RFP conference will be conducted on **Tuesday, April 19, 2022 at 10:00 AM** (central). The pre-RFP conference will be held at the Fort Bend County Purchasing Department located in the Travis Annex at 301 Jackson, Suite 201, Richmond, Texas 77469. All vendors are encouraged to attend. A site visit will commence immediately following, if needed. This is the only date and time vendors will be permitted to complete a site visit with a County representative.

10.0 RETENTION OF RESPONDENT'S MATERIAL:

The County reserves the right to retain all proposals regardless of which response is selected. All proposals and accompanying documents become the property of the County.

11.0 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION:

By submission of a proposal, each Respondent certifies, that in connection with this procurement:

- 11.1 The prices in this proposal have been arrived at independently, without consultation, communication, or agreement with any other Respondent; with any

competitor; or with any County employee(s) or consultant(s) for the purpose of restricting competition on any matter relating to this Proposal.

- 11.2 Unless otherwise required by law, the prices which have been quoted in this proposal have not been knowingly disclosed by the Respondent and will not knowingly be disclosed by the Respondent prior to award directly or indirectly to any other Respondent or to any competitor; and;
- 11.3 No attempt has been made or will be made by the Respondent to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

12.0 ASSIGNMENT:

The Respondent may not sell, assign, transfer or convey the contract resulting from this Proposal, in whole or in part, without the prior written approval from Fort Bend County Commissioners' Court.

13.0 CONFIDENTIAL MATTERS:

- 13.1 All data and information gathered by the Respondent and its agents, including this Proposal and all reports, recommendations, specifications, and data shall be treated by the Respondent and its agents as confidential. The Respondent and its agents shall not disclose or communicate the aforesaid matters to a third party or use them in advertising, publicity, propaganda, and/or in another job or jobs, unless written consent is obtained from the County.
- 13.2 Proposals will only be publicly received and acknowledged only so as to avoid disclosure of the contents to competing Respondents and kept secret during negotiation. However, all proposals shall be open for public inspection after the contract is awarded. Trade secrets and any material that is considered to be confidential information contained in the proposal and identified by Respondent as such will be treated as confidential to the extent allowable in the Open Records Act.

14.0 CONFLICT OF INTEREST:

No County public official shall have interest, direct or indirect, in any contract resulting from this Proposal, in accordance with Texas Local Government Code Chapter 171. Furthermore, the Respondent shall comply with Commissioners' Court Order No. 96-680-10-28, Establishment of Guidelines and Restrictions Regarding the Acceptance of Gifts by County Officials and County Employees.

15.0 LIMITS OF SUBCONTRACTORS:

- 15.1 The County has approval rights over the use and/or removal of all subcontractors and/or vendor(s). Subcontractors shall conform to all County policies.
- 15.2 Any dispute between the Respondent and subcontractors, including any payment dispute, will be promptly remedied by the Respondent. Failure to promptly remedy or to make prompt payment to subcontractor may result in the withholding of funds from the Respondent by the County for any payments owed to the subcontractor.

16.0 JURISDICTION, VENUE, CHOICE OF LAW:

This Proposal and any contract resulting there from shall be governed by and construed according to the laws of the State of Texas. Should any portion of any contract be in conflict with the laws of the State of Texas, the State laws shall invalidate only that portion. The remaining portion of the contract(s) shall remain in effect. Any lawsuit shall be governed by Texas law and Fort Bend County, Texas shall be the venue for any action or proceeding that may be brought or arise out of, in connection with or by reason of this Proposal process and resulting Agreements.

17.0 INDEPENDENT CONTRACTOR:

The Respondent is an independent contractor and no employee or agent of the Respondent shall be deemed for any reason to be an employee or agent of the County.

18.0 AMERICANS WITH DISABILITIES ACT (ADA)

Proposals shall comply with all federal, state, county, and local laws concerning this type of products/service/equipment/project and the fulfillment of all ADA requirements.

19.0 DRUG-FREE WORKPLACE:

All Respondents shall provide any and all notices as may be required under the Drug-Free Workplace Act of 1988, 28 CFR Part 67, Subpart F, to their employees and all sub-contractors to insure that the County maintains a drug-free workplace.

20.0 PERFORMANCE AND PAYMENT BOND:

The Respondent shall post with Fort Bend County, not later than ten (10) days of the County's award of a contract, a performance and payment bond in the amount of one hundred percent (100%) of the total lump sum price in such form as is satisfactory by County. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Respondent shall notify its corporate surety of any contract changes.

21.0 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.

22.0 TEXAS ETHICS COMMISSION FORM 1295:

- 22.1 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 firms 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.

- 22.2 On-line instructions:

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

22.2.2 Identification number use: RFP 22-073

22.2.3 Description is: Roof replacement at Jane Long Annex

- 22.3 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.

23.0 INSURANCE:

- 23.1 All respondents shall submit, with RFP, a current certificate of insurance indicating coverage in the amounts stated below. In lieu of submitting a certificate of insurance, respondents may submit, with RFP, 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 insurance policy, with the coverage stated below, to the firm named therein, if successful, upon award of this Contract.
- 23.2 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:

- 23.2.1 Workers' Compensation insurance. Substitutes to genuine Workers' Compensation Insurance will not be allowed.
- 23.2.2 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.
- 23.2.3 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.
- 23.2.4 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.
- 23.3 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.
- 23.4 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 extended discovery period will be exercised for a period of two (2) years beginning from the time that work under the agreement is completed.

24.0 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.

- 24.1 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.

- 24.2 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.
- 24.3 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.
- 24.4 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.
- 24.5 The provision by Respondent of insurance shall not limit the liability of Respondent under an agreement.
- 24.6 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 arise may from said Respondent's operations. Such provisions shall be in form satisfactory to Fort Bend County.
- 24.7 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.

25.0 PREVAILING WAGES:

This project is subject to the prevailing wage rate requirements of Chapter 2258 of the Government Code. All persons employed by Contractor shall be compensated at not less than the rates shown below. Contractor shall keep detailed records of each of its workers and said records shall be made available to County for inspection at all reasonable times. 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 www.wdol.gov/dba.aspx.

General Decision Number: TX20220247 03/11/2022

Superseded General Decision Number: TX20210247

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: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022, Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022, Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/07/2022
1	01/21/2022
2	02/18/2022
3	02/25/2022
4	03/11/2022

* ASBE0022-009 06/01/2021

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)	\$ 25.14	15.15
BOIL0074-003 01/01/2021		
BOILERMAKER	\$ 29.47	24.10
CARP0551-008 04/01/2016		
CARPENTER (Excludes Acoustical Ceiling Installation, Drywall Hanging, Form Work and Metal Stud Installation)	\$ 23.05	8.78
ELEC0716-005 08/30/2021		
ELECTRICIAN (Excludes Low Voltage Wiring and Installation of Alarms)	\$ 33.20	10.37
ELEV0031-003 01/01/2022		
ELEVATOR MECHANIC	\$ 47.04	36.885+a+b

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
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IRON0084-002 06/01/2021

IRONWORKER (ORNAMENTAL AND STRUCTURAL)	\$ 26.01	7.56
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PLAS0783-001 04/01/2021

PLASTERER	\$ 26.04	9.02
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PLUM0068-002 10/01/2021

PLUMBER	\$ 36.83	11.71
PLUM0211-010 10/01/2021		
PIPEFITTER (Including HVAC Pipe Installation)	\$ 37.03	12.56
SHEE0054-003 04/01/2020		
SHEET METAL WORKER (Excludes HVAC Duct and Unit Installation)	\$ 29.70	13.85
* 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
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
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.

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$15.00) or 13658 (\$11.25). Please see the Note at the top of the wage determination for more information.

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/agencies/whd/government-contracts.

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 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 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.

26.0 PERMITS:

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

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 project will be deemed a separate project 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 project. Respondent is to issue its Texas Resale Certificate

to vendors and subcontractors for such items qualifying for this exemption, and further, Respondent should state these items at cost.

28.0 NAME BRANDS:

Name Brands: Specifications may reference name brands and model numbers. It is not the intent of Fort Bend County to restrict these bids in such cases, but to establish a desired quality level of merchandise or to meet a pre-established standard due to like existing items. Bidders may offer items of equal stature and the burden of proof of such stature rests with them. Fort Bend County shall act as sole judge in determining equality and acceptability of products offered.

29.0 EVALUATION CRITERIA:

In order to facilitate the analysis of responses to this Proposal, Respondents are required to prepare their proposals in accordance with the instructions outlined in this part. Proposals should be prepared as simply as possible and provide a straightforward, concise description of the Respondent's capabilities to satisfy the requirements of the Proposal. Emphasis should be concentrated on accuracy, completeness, and clarity of content. All parts, pages, figures, and tables should be numbered and clearly labeled.

- 29.1 Respondents are required to follow the outline below when preparing their proposals:

Tab	Title
	Title Page
	Letter of Transmittal
	Table of Contents
	Executive Summary
1	Cost
2	Understanding Scope of Work
3	Firm's Experience
4	Staff Experience
5	Proposed Schedule
6	Overall Completeness of Proposal

- 29.2 Any exceptions to the Proposal requirements shall be identified in the applicable section.

- 29.3 Executive Summary - This part of the response to the Proposal should be limited to a brief narrative highlighting the Respondent's proposal. This section should not include cost quotations. Note that the executive summary should identify the primary contacts for the Respondent.

- 29.4 Respondents will be evaluated utilizing the factors, as weighted below:

Tab 1

Cost (weight factor = 45%)

- Complete Exhibit I.

Tab 2

Understanding Scope of Work (weight factor = 15%)

- Respondents must express, in detail, their understanding of this specific roofing project. In addition, describe how the project requested will be provided and managed. Describe the approach your firm will take to the required collaboration, scheduling and coordination required for this project.

Tab 3

Firm's Experience (weight factor = 15%)

- Firm Experience with Projects of Similar Size, Complexity: Such experience must be in the form of roof construction services. List a minimum of three (3) similar projects completed within the last ten (10) years; provide the name and location of each project, detailed description of project, completion date, final cost, the client, and a contact person and phone number.

Tab 4

Staff Experience (weight factor = 10%)

- Staff Experience with Extensive Renovation of Projects of Similar Size, and Complexity: Such experience must be in the form of providing project management and roof construction services. Provide organizational chart and provide resumes for project superintendent and project manager who will be assigned to this project; resumes to include a minimum of three (3) similar projects completed within the last ten (10) years, provide the client's name and location of each project, and a contact person and phone number and completion date.

Tab 5

Proposed Schedule (weight factor = 10%)

- Provide project schedule.

Tab 6

Overall Completeness of Proposal (weight factor = 5%)

- Proof of Insurance

- Completed Respondent forms
- Completed W9 form
- Completed debt form
- Completed Contractor Acknowledgement of Stormwater Management Program form

30.0 AWARD:

The County will select the respondent whose proposal is the highest evaluated and responsible for the County. Contractual commitments are contingent upon the availability of funds, as evidenced by the issuance of a purchase order. All contracts are subject to the approval of the County's legal counsel and Commissioners' Court, prior to execution. Once awarded, the contract will be the final expression of the agreement between the parties and may not be altered, changed, or amended except by mutual agreement, in writing.

31.0 RETAINAGE:

Within thirty (30) days after receipt of each uncontested Application for Payment together with the supporting materials required, County shall advance to Contractor the uncontested amount requested in such uncontested Application for Payment, except *five* percent (5%) of the amount requested (hereinafter "Retainage") in each Application for Payment by County. The Retainage withheld shall be released upon final completion of the entire Project and verification of satisfactory work performed, unless grounds exist for withholding payment on account of other defaults by Contractor, including services provided by its sub-contractors.

32.0 LIQUIDATED DAMAGES:

If the Services are not substantially completed within the time for performance or within such additional time as may be extended by County, County will deduct from the final payment as liquidated damages and not as a penalty the sum of two hundred and fifty (\$250.00) per calendar day that the Services are not substantially complete. Such sum is agreed upon as a reasonable and proper measure of the damages County will sustain.

33.0 STATE LAW REQUIREMENTS FOR CONTRACTS:

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

33.1 Agreement to Not Boycott Israel Chapter 2271 Texas Government Code:

Contractor verifies that if Contractor employs ten (10) or more full-time employees and this Agreement has a value of \$100,000 or more, Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement.

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

34.0 SPECIFICATIONS:

34.1 BASE PROPOSAL – JANE LONG ANNEX

- 34.1.1 Work shall include all labor, materials, and incidentals to provide a full roof. The entire roofing system is to be removed down to the existing lightweight concrete over structural concrete roof deck.
- 34.1.2 Install one (1) layer of vented base sheet, mechanically installed to the light-weight concrete roof deck. Respondent is responsible for any pull tests required by manufacturer.
- 34.1.3 Install 90-mil smooth sanded base ply (torch application) as part of a multi-ply PVC roof system, as required by manufacturer.
- 34.1.4 Install one (1) layer of 50 mil fleeceback Elvaloy PVC membrane set in cold process adhesive as primary membrane to be used. Fibertite 50-mil XT by design.
- 34.1.5 Raise any curb flashings to a height of ten inches (10”) above finished roof surface.
- 34.1.6 Install new mechanical curbs at RTU units, according to supplemental details and engineering requirements. See contractor note on the roof plan for direction.
- 34.1.7 Remove and replace edge metal, continuous sheet metal cleat and lower fascia trim and replace with like color pre-finished metal copings. Owner to select color.
- 34.1.8 Remove and replace all counter flashings and replace with new stainless-steel metal.
- 34.1.9 Extend existing soil pipes to a height of eight inches (8”) above finished roof surface.
- 34.1.10 Install crickets at the high side of each unit larger than twenty-four inches (24”).

- 34.1.11 Install new through-edge scuppers to match existing size and location and drain into a new collector head with overflow cutout at six (6) locations.
- 34.1.12 Install new gutter over the entrance to the building, oversized downspouts, straps and supports to match existing size and location. Owner to select color.
- 34.1.13 Install new gooseneck entrance box at any conduit, install new stainless-steel goose neck cover and faceplate to direct water away from opening.
- 34.1.14 All small piping is required to be supported by small pipe supports with rollers.
- 34.1.15 All measurements are the responsibility of the Contractor.
- 34.1.16 Provide a five (5) year Contractor's warranty.
- 34.1.17 Provide a manufacturer's twenty (20) year NDL warranty to include 120mph wind rating.
- 34.1.18 All mechanical, electrical, plumbing disconnections shall be the responsibility of the Contractor. This is considered a turn-key project. All work is the responsibility of the Contractor.
- 34.1.19 Contractor to coordinate the disconnect and reconnect of existing satellites on the roof to prevent long downtimes for occupants. If satellites do not have to be removed from the roof surface, coordinate days for adjusting signals.
- 34.1.20 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications, and manufacturer's guidelines.
- 34.1.21 Contractor to coordinate and install two (2) new RTU curb units. Curbs are to be provided by Johnson Controls to Fort Bend County.
- 34.1.22 Mechanical contractor installing the RTU units will be Johnson Controls. Coordination between removing the existing units, deck modifications, structure install, and reinstallation of new units will be directed by the roofing Contractor. One (1) unit at a time must be completed and brought into service before the next unit can be started. Johnson Controls will pull the current RTU's and installing the new RTU.
- 34.1.23 Johnson Controls to organize the removal of existing RTU units with roofing Contractor. Crane operations and a lifting plan is required and must be approved prior to starting work.

- 34.1.24 Roofing Contractor to install structural steel on top of 3-inch structural concrete roof deck removing as much lightweight insulating concrete as required to complete the task and as per detailed.
- 34.1.25 Pour additional lightweight concrete fill material in flush with top of structural steel supports.
- 34.1.26 Roofing Contractor to install roof top curbs, as specified by mechanical contractor providing the units.
- 34.1.27 Flash in new curb units to roof system per details and manufacturer's requirements.
- 34.1.28 Johnson Controls to install new RTU mechanical units.
- 34.1.29 Contractor is responsible for scheduling a final inspection with the roofing manufacturer and Facilities Manager to inspect final roofing project.
- 34.1.30 Worksite to be cleaned and materials secured on a daily basis.
- 34.1.31 Vendor to provide dumpster for all trash.
- 34.1.32 A schedule must be provided to Fort Bend County for project duration.
- 34.1.33 The contracted vendor is responsible for obtaining any required permit(s).
- 34.1.34 All work to be scheduled and coordinated with Facilities Manager and inspected by same, or his/her designee.
- 34.1.35 Vendor to be self-performing contractor. No sub-contractors.

34.2 ALTERNATE PROPOSAL – JANE LONG ANNEX

- 34.2.1 Work shall include all labor, materials, and incidentals to provide a full re-roof. The entire roofing system is to be removed down to the existing lightweight concrete roof deck over a structural concrete poured over a metal pan.
- 34.2.2 Contractor to repair all existing lightweight concrete damage from prior system being removed and deck must be documented and inspected prior to roofing.
- 34.1.3 Install one (1) layer of vented base sheet, mechanically installed to the light-weight concrete roof deck. Contractor is responsible for any pull tests required by manufacturer.

- 34.1.4 Install a 2-ply modified “cool roof” SBS roofing system, torch applied. GAF Rubberoid Energy Cap as basis of design.
- 34.1.5 Raise any curb flashings to a height of ten inches (10”) above finished roof surface.
- 34.1.6 Raise any curb flashings to a height of ten inches (10”) above finished roof surface.
- 34.1.7 Install new mechanical curbs at RTU units, according to supplemental details and engineering requirements. See contractor note on the roof plan for direction.
- 34.1.8 Remove and replace edge metal, continuous sheet metal cleat and lower fascia trim and replace with like color pre-finished metal copings. Owner to select color.
- 34.1.9 Remove and replace all counter flashings and replace with new stainless-steel metal.
- 34.1.10 Extend existing soil pipes to a height of eight inches (8”) above finished roof surface.
- 34.1.11 Install crickets at the high side of each unit larger than twenty-four inches (24”).
- 34.1.12 Install new through-edge scuppers to match existing size and location and drain into a new collector head with overflow cutout at six (6) locations.
- 34.1.13 Install new gutter over the entrance to the building, oversized downspouts, straps and supports to match existing size and location. Owner to select color.
- 34.1.14 Install new gooseneck entrance box at any conduit, install new stainless-steel goose neck cover and faceplate to direct water away from opening.
- 34.1.15 All small piping is required to be supported by small pipe supports with rollers.
- 34.1.16 All measurements are the responsibility of the Contractor.
- 34.1.17 Provide a five (5) year Contractor’s warranty.
- 34.1.18 Provide a manufacturer’s twenty (20) year NDL warranty to include 120mph wind rating.

- 34.1.19 All mechanical, electrical, plumbing disconnections shall be the responsibility of the Contractor. This is considered a turn-key project. All work is the responsibility of the Contractor.
- 34.1.20 Contractor to coordinate the disconnect and reconnect of existing satellites on the roof to prevent long downtimes for occupants. If satellites do not have to be removed from the roof surface, coordinate days for adjusting signals.
- 34.1.21 All installation shall be per NRCA, SPRI, ES-1, ASCE-7, the specifications, and manufacturer's guidelines.
- 34.1.22 Contractor to coordinate and install two (2) new RTU curb units. Curbs are to be provided by Johnson Controls to Fort Bend County.
- 34.1.23 Mechanical contractor installing the RTU units will be Johnson Controls. Coordination between removing the existing units, deck modifications, structure install, and reinstallation of new units will be directed by the roofing Contractor. One (1) unit at a time must be completed and brought into service before the next unit can be started. Johnson Controls will pull the current RTU's and installing the new RTU.
- 34.1.24 Johnson Controls to organize the removal of existing RTU units with roofing Contractor. Crane operations and a lifting plan is required and must be approved prior to starting work.
- 34.1.25 Roofing Contractor to install structural steel on top of 3-inch structural concrete roof deck removing as much lightweight insulating concrete as required to complete the task and as per detailed.
- 34.1.26 Pour additional lightweight concrete fill material in flush with top of structural steel supports.
- 34.1.27 Roofing Contractor to install roof top curbs, as specified by mechanical contractor providing the units.
- 34.1.28 Flash in new curb units to roof system per details and manufacturer's requirements.
- 34.1.29 Johnson Controls to install new RTU mechanical units.
- 34.1.30 Contractor is responsible for scheduling a final inspection with the roofing manufacturer and Facilities Manager to inspect final roofing project.
- 34.1.31 Worksite to be cleaned and materials secured on a daily basis.

34.1.32 Vendor to provide dumpster for all trash.

34.1.33 A schedule must be provided to Fort Bend County for project duration.

34.1.34 The contracted vendor is responsible for obtaining any required permit(s).

34.1.35 All work to be scheduled and coordinated with Facilities Manager and inspected by same, or his/her designee.

34.1.36 Vendor to be self-performing contractor. No sub-contractors.

35.0 REQUIRED FORMS:

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

35.1 Vendor Form

35.2 W9 Form

35.3 Tax Form/Debt/Residence Certification

35.4 Contractor Acknowledgement of Stormwater Management Program

36.0 EXHIBIT:

Exhibit I: Cost

Exhibit II: Specs and Drawings

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.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ 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. <input type="checkbox"/> Other (see instructions) ▶ _____	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	6 City, state, and ZIP code	
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									
				-					

Part II Certification

Under penalties of perjury, I certify that:

- 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
- 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
- I am a U.S. citizen or other U.S. person (defined below); and
- 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 ▶	Date ▶
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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:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- 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
- 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.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee ¹ The actual owner ¹
5. Sole proprietorship or disregarded entity owned by an individual	The owner ³
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor ⁴
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity ⁴
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

***Note.** Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.ftc.gov/idtheft or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

Job No.: _____

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

Taxpayer Identification Number (T.I.N.): _____

Company Name submitting Bid/Proposal: _____

Mailing Address: _____

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

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**

* 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 _____ is a Resident Bidder of Texas as defined in Government Code §2252.001.
[Company Name]

☐ I certify that _____ is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____.

[City and State]

Mandatory Form



Contractor Acknowledgement of Storm Water 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:

(Company/Contractor)

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

Contractor Signature

Date

Printed Name

Title

RFP 22-073

Exhibit I: Cost

Base proposal

\$ _____

Calendar days for completion _____

Alternate proposal

\$ _____

Calendar days for completion _____

Acknowledgement of Receipt of Addendum(s), if issued by Purchasing, to the Request for Proposal Document.

Addendum No 1 dated _____ Received _____

Addendum No 2 dated _____ Received _____

Addendum No 3 dated _____ Received _____

Name of Respondent

Signature of Authorized Representative

Printed Name of Representative

**SECTION 00 73 43
PREVAILING WAGES REQUIREMENTS**

PART 1 - NOT USED

PART 2 - NOT USED

PART 3 – EXECUTION

3.01 LABOR RATE

- A. The Board of Trustees, for the purpose of complying with Section 2258, Subchapter B of the Texas Government Code for all public contracts, has adopted the prevailing wage rates as determined by the United States Department of Labor in accordance with the Davis-Bacon Act as the published rates for the District. These rates are listed on the following website: www.access.gpo.gov/davisbacon/tx.html.
- B. Under the county the project is located in will be a number of files, all files shall be reviewed by the contractor. It is the responsibility of the contractor to pay the appropriate rate or higher on the construction project or be subject to penalty as set forth in section 2258.023 of the Texas General Government Code.
- C. The Contractor is to be able to provide documentation to support compliance upon the request of the Owner.

3.02 REQUIREMENTS

- A. Pay not less than the minimum wage scale and benefits indicated on the "Minimum Wage Rates" scale indicated herein. Wages listed are minimum rates only. No claims for additional compensation will be considered by Owner because of payments of wage rates in excess of the applicable rate contained in this contract.

3.03 APPLICABLE STATUTES

- A. Vernon's Civil Statutes, Section 2 Chapter 45 of Article 5159a amended by H.G. No. 560, June 25, 1993, which states as follows:
"A contractor or subcontractor in violation of this Act, is liable for a penalty. That contractor or subcontractor shall pay to the State, county, or city with more than 10,000 residents, district or other political subdivision on whose behalf the contract is made or awarded, Sixty Dollars (\$60.00) for each laborer, workman or mechanic employed, for each calendar day, or portion thereof, such laborer, workman or mechanic is paid less than the said stipulated rates for any work done under said contract, and the said public body awarding the contract shall cause to be inserted in the contract a stipulation to this effect. The money collected under this subsection shall be used by the awarding body to offset the costs incurred in the administration of this section."

3.04 PAYROLL

- A. In compliance with Article 5159a, Section 2, amended by Acts 1993, 73rd Legislature Ch. 606, Subchapter 1 effective September 1, 1993, the Owner reserves the following rights:
 - 1. To receive weekly payroll records.

2. To have the Contractor provide required earning statements to employees.

3.05 MINIMUM WAGE RATES

- A. Pay prevailing basic wage listed, plus any fringe benefits.
1. This determination of prevailing wages shall not be construed to prohibit the payment of more than the rates named. Under no condition shall any laborer, workman or mechanic employed on this job be paid less than the minimum wage scale.
 2. In execution of this contract, the Contractor must comply with all applicable state and federal laws, including but not limited to laws concerned with labor, equal employment opportunity, safety, and minimum wage.

END OF SECTION 00 73 43

SECTION 01 10 00
GENERAL REQUIREMENTS

1.01 DESCRIPTION OF WORK

- A. It is the intent of the specification that the new work will provide a watertight facility. These specifications describe the minimum acceptable standards of construction and finish.
- B. Provide a white Elvaloy® based thermoplastic fleece backed sheet roof system on the areas as indicated on the enclosed drawings for the facility known as **THE JANE LONG ANNEX**, located at 500 Liberty Street, Richmond, TX 77469. The roof shall be installed in accordance with the attached specifications and in strict accordance with the manufacturer's recommended procedures.
- C. Provide a heat applied asphalt modified membrane roof system on the areas as indicated on the enclosed drawings for the facility known as **THE JANE LONG ANNEX** as an alternate to Base Proposal 1. The roof shall be installed in accordance with the attached specifications and in strict accordance with the manufacturer's recommended procedures.

1.02 BID PROPOSAL BONDS

- A. AN ACCEPTABLE SURETY COMPANY BID PROPOSAL BOND or CERTIFIED CHECK for the amount not less than five percent (5%) of the proposal amount shall accompany each proposal. By "Acceptable Surety" is meant an Insurance Company licensed by the Texas State Board of Insurance to act as surety, rated "A" or better, listed in the Federal Register, and having an unblemished record. The check or bond of each unsuccessful Contractor will be returned within ten (10) days after the proposal is awarded. FAILURE OF AN ACCEPTED CONTRACTOR TO ENTER INTO A CONTRACT TO COMPLETE THE SPECIFIED WORK MAY CAUSE FORFEITURE OF HIS SEALED PROPOSAL SECURITY. FAILURE TO SUBMIT PROPER SEALED PROPOSAL SECURITY SHALL CAUSE REJECTION OF THE PROPOSAL.

1.03 PAYMENT AND PERFORMANCE BONDS

- A. Prior to commencement of Work hereunder, Contractor will, if the Contract Price exceeds \$25,000.00, provide an Acceptable Surety Company Payment Bond, and if the Contract Price exceeds \$100,000.00, provide an Acceptable Surety Company Performance Bond, each in principal amount equal to one hundred percent (100%) of the Contract Price, conditioned that Contractor will faithfully perform all its undertakings in this Contract and will fully pay all persons furnishing labor and material in the prosecution of the Work provided for in this Contract. If any surety upon any bond becomes insolvent or otherwise ceases to do business in this State, the Contractor shall promptly furnish equivalent security to protect the interests of FORT BEND COUNTY and of persons furnishing labor and materials in the prosecution of the Work.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1.04 INSURANCE

- A. The Contractor shall maintain insurance of the kinds and in the amounts specified below and furnish FORT BEND COUNTY with Certificates of Insurance as evidence thereof in the prescribed form. If any work provided for or to be performed under any Specifications is sub-let (as otherwise permitted by the terms of such Specifications), the Contractor shall require the Subcontractor to maintain and furnish him with satisfactory evidence of Workmen's Compensation, Employer's Liability and such other forms and amounts of insurance which the Contractor deems reasonably adequate.
- B. The Contractor will provide and maintain standard fire, extended coverage perils, vandalism and malicious mischief insurance to protect the interest of both the Contractor and the Owner for materials brought into the job or stored on the premises. Such insurance shall be for one hundred percent (100%) of the insurable value of the work to be performed including all items of labor and materials incorporated therein, materials stored at the job-site to be used in completing the work, and such other supplies and equipment incidental to the work as are not owned or rented by the Contractor, the costs of which are included in the direct cost of the work.
- C. This insurance shall not cover any tools, derricks, machinery, tar buckets, ladders, engines, workmen's quarters, boilers, pumps, wagons, scaffolds, forms, compressors, shanties, or other items owned or rented by the Contractor, the cost of which is not included in the direct cost of the work.
- D. In accordance with above items, the Contractor shall maintain the following insurance:
- Contractor shall carry throughout the life of this Contract, at his expense, with insurers satisfactory to FORT BEND COUNTY, insurance of not less than the following limits:

<u>Coverage</u>	<u>Minimum Limit</u>
Workmen's Compensation	Statutory
Employer's Liability	\$100,000
Comprehensive General Liability	
Bodily Injury	
Each Occurrence Each Person	\$500,000
Property Damage	
Each Occurrence	\$100,000
Annual Aggregate	\$300,000
Comprehensive Automobile Liability	
Bodily Injury	
Each Person	\$300,000
Each Occurrence	\$500,000
Property Damage	
Each Occurrence	\$100,000

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

Owner's Protective Liability	
Bodily Injury	
Each Occurrence	\$500,000
Property Damage	
Each Occurrence	\$100,000
Annual Aggregate	\$300,000
Builder's Risk	Fully Insurable Value of the Work
"Umbrella" Liability	\$1,000,000
Contract Value up to	
\$3,000,000	

E. This Insurance shall:

1. include coverage for the liability assumed by the Contractor;
2. include completed operation coverage which is to be kept in force by the Contractor for a period of not less than one year after completion of the work provided for or performed under these specifications;
3. not be subject to any of the special property damage liability exclusions commonly referred to as the XCU exclusions pertaining to blasting or explosion, collapse or structural damage and underground property;
4. not be subject to any exclusion of property used by the insured or property in the case, custody or control of the insured or property as to which the insured for any purpose is exercising physical control; and
5. the Certificates of Insurance furnished by the Contractor shall show by specific reference that each of the foregoing items have been provided for.

F. The Certificates of Insurance furnished by the Contractor as evidence of the insurance maintained by him shall include a clause obligating the Insurer to give FORT BEND COUNTY ten (10) days prior written notice of cancellation or any material change in the insurance.

1.05 TAXES

- A. Except as otherwise provided in the Contract Documents the Contract Price includes all applicable federal, state and local taxes. The purchase, lease, rental, storage, use or other consumption of tangible personal property, for the performance of this Contract by the Contractor, is exempted from state and local sales tax pursuant to the provisions of Article 20.04 (Y) of the Texas Limited Sales Excise and Use Tax Act. To claim the benefit of this exemption, the Contractor must comply with such procedures as may be prescribed by the State Comptroller of Public Accounts.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

1 1.06 INDEMNITY
2

- 3 A. The contractor shall indemnify the Owner and hold Owner harmless from and against any
4 and all loss, cost, damage or expense of every kind and nature (including, without
5 limitation, court costs, expenses and reasonable attorney's fees) arising out of injuries to
6 or death of persons (including, without limitation, the Owner, the contractor and any
7 Subcontractor and their respective employees, agents, licensees and representatives) or
8 damage to or destruction of property (including, without limitations, property of the Owner,
9 the contractor and any Subcontractor and property of their respective employees, agents,
10 licensees and representatives) in any manner except as stated in Insurance sections
11 below, caused by, resulting from, incident to, connected with or growing out of
12 performance of the agreement, unless caused solely by the negligent acts or omissions of
13 the Owner, or its employees, agents, licensees or representatives.
14
- 15 B. Contractor shall give prompt notice to Owner's representative of all losses, damages or
16 injuries to person or property of Owner, contractor or third person in any way related to
17 this agreement or for which a claim might be made against Owner and shall promptly
18 report to Owner's representative all such claims of which contractor has notice, whether
19 relating to matters insured or uninsured.
20
- 21 C. No settlement of payment of any claim for loss, injury or damage or other matter as to
22 which Owner may be charged with obligation to make any payment or reimbursement
23 shall be made by contractor without the written approval of Owner.
24

25 1.07 LIENS
26

- 27 A. Neither the final payment nor the remaining retained percentage shall become due until
28 the contractor submits to the Owner:
29 1. an Affidavit that all payrolls, bills for materials and equipment, and other indebtedness
30 connected with the work for which the Owner or his property might in any way be
31 responsible, have been paid or otherwise satisfied;
32 2. consent of surety, if any, to final payment;
33 3. if required by the Owner, other data establishing payment or satisfaction of all such
34 obligations, such as receipts, releases and waivers of liens arising out of the Contract,
35 to the extent and in such form as may be designated by the Owner.
36
- 37 B. If any Subcontractor refuses to furnish a release or waiver required by the Owner, the
38 contractor may furnish a bond satisfactory to the Owner to indemnify him against any such
39 lien.
40
- 41 C. If any such lien remains unsatisfied after all payments are made, the contractor shall
42 refund to the Owner all monies that the latter may be compelled to pay in discharging such
43 lien, including all costs and reasonable attorney's fees.
44

45 1.08 OVERTIME
46

- 47 A. Work that the contractor performs on overtime for the contractor's benefit is not billable to
48 the Owner. The work that the Owner requests in writing to be performed during off hours
49 is billable to Owner by the contractor at the additional per man per hour rate as bid under
50 unit cost.
51

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1 1.09 ADDENDA
2

- 3 A. Any verbal statement or inference prior to the proposal opening regarding modification of
4 specifications is invalid unless so stated on an officially issued addendum.
5

6 1.10 REJECTION OF PROPOSALS
7

- 8 A. The Owner reserves the right to reject any one or all proposals, to waive any formalities or
9 irregularities, and to award the contract in the best interest of the Owner
10

11 1.11 ASSIGNMENT
12

- 13 A. The contractor shall not assign this agreement, or any part thereof, without approval in
14 writing of the Owner.
15

16 1.12 RELATIONSHIP
17

- 18 A. The relationship of the contractor to the Owner shall be that of an independent contractor,
19 and the contractor shall have no power to bind the Owner.
20

21 1.13 TERMINATION
22

- 23 A. If the contractor shall default in performance of any terms or provisions of this agreement,
24 then the Owner may, upon seven (7) days prior written notice and without prejudice to any
25 other right or remedy, terminate the employment of the contractor and take possession of
26 the premises and all materials and appliances thereon and finish the work by whatever
27 method the Owner may deem expedient. In such event the contractor shall not be entitled
28 to receive any further payment hereunder until the work is finished. The total cost to the
29 Owner of finishing the work shall be paid to Owner or may be deducted from any balance
30 due the contractor under this agreement.
31

32 1.14 CANCELLATION
33

- 34 A. In the event the Owner decides not to proceed with the work, though the contractor is not
35 at fault and subject to provisions of Liens paragraph above, the Owner may terminate this
36 agreement at any time upon written notice to the contractor, thereupon the Owner's only
37 liability shall be to pay to the contractor all costs for labor and materials incorporated in the
38 work prior to termination and all costs incurred in discharging outstanding obligations of
39 the contractor at the request of the Owner, and a reasonable overhead and profit, less any
40 previous payments made hereunder or amount of claims of Owner against contractor.
41

42 1.15 PERMITS
43

- 44 A. The Contractor shall obtain and pay for all permits required, give all legal notices and pay
45 all fees required for the work. Contractor shall comply with all ordinances and laws. Any
46 and all work done which does not meet requirements of any local authorities must be
47 properly redone, and incidental work replaced by the Contractor, without cost to the
48 Owner.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

1 1.16 CONTRACT DOCUMENTS
2

- 3 A. In the event of a conflict between the reroofing specifications and the Owner's contract
4 documents, the MORE STRINGENT or Owner's contract documents shall take
5 precedence.
6

7 1.17 CONTRACT CONDITIONS
8

- 9 A. The contractor agrees that he is familiar with the premises, drawings and specifications,
10 accepts the conditions that will exist in performing the work and the price for this
11 agreement was established with full consideration of such acceptance. Contractor shall
12 perform the work under the direction and to the satisfaction of the Owner's representative
13 designated by the Owner. The contractor shall cooperate with Owner's representative and
14 other contractors on the premises and shall carry on the work as to not hinder, delay, or
15 interfere with the operations of the Owner or other contractors.
16
17 B. This roof system shall only be applied by a roofing Contractor previously certified by the
18 roof system manufacturer. Contractor must be able to furnish evidence of this certification.
19
20 C. Installer must be an experienced single firm specializing in the type of removal and
21 replacement work required, having at least five (5) years successful experience on
22 projects similar in size and scope and acceptable as applicators by the Owner's
23 representative.
24

25 1.18 CHANGES FOR EXTRA WORK
26

- 27 A. No change or addition to specifications and drawings shall be made except upon receipt
28 by the Contractor of a signed order from the Owner authorizing such a change. No claims
29 for an extra to the contract price shall be valid unless so authorized.
30

31 1.19 PRE-CONSTRUCTION CONFERENCE
32

- 33 A. A conference shall be scheduled by the Owner's representative and conducted at the work
34 site prior to start of work. The Contractor's project supervisor or foreman and the Owner's
35 representative shall attend. Job schedule, submittals, existing conditions, and
36 specifications shall be reviewed and any questions arising shall be resolved to the
37 satisfaction of all parties prior to start of work. Contractor shall begin work within five (5)
38 calendar days following Owner's signing of contract and/or issuance of the written notice
39 to proceed with work, weather permitting.
40

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

1 1.20 WORKING TIME

- 2
- 3 A. A working day is defined as a calendar day, not including Saturdays, Sundays, or legal
- 4 holidays, in which weather or other conditions not under the control of the company will
- 5 permit the performance of the principal units of work underway for a continuous period of
- 6 not less than seven (7) hours between 7:00 A.M. and 6:00 P.M. For every Saturday on
- 7 which the company chooses to work, one day will be charged against the working time
- 8 when weather conditions will permit seven (7) hours of work as delineated above. A
- 9 principal unit of work shall be that unit which controls the completion time of the
- 10 agreement. Nothing in this item shall be construed as prohibiting the company from
- 11 working on Saturdays if it so desires. If Sunday work is permitted by the Owner, working
- 12 time will be charged on the same basis as weekdays.
- 13

14 1.21 QUALITY ASSURANCE

- 15 A. All work and materials hereinafter specified shall be best of kind described and, unless
- 16 specified otherwise, shall be new and of best quality. The specified roofing system shall
- 17 have been used successfully in the United States for a minimum of ten (10) years.
- 18
- 19 B. All materials will be securely fastened in place in a watertight, neat and workmanlike
- 20 manner.
- 21
- 22 C. All workmen shall be thoroughly experienced in the particular class of work for which they
- 23 are employed.
- 24
- 25 D. All work shall be done in accordance with these specifications and shall meet the approval
- 26 in the field of the Owner's representative. Contractor's representative and/or job
- 27 supervisor shall have a complete copy of specifications and drawings on job site at all
- 28 times.
- 29
- 30 E. Contractor shall plan and conduct the operations of the work so that each section started
- 31 on one day is complete, details installed and thoroughly protected before the close of work
- 32 for that day.
- 33
- 34 F. Application of materials shall be in strict accordance with the manufacturer's
- 35 recommendations. In the instance of a conflict between these specifications and those of
- 36 the manufacturer, the most stringent shall take precedence.
- 37
- 38 G. Roofing system manufacturer shall have approval for FM Global wind uplift requirements
- 39 and shall meet Underwriter's Laboratory fire rating.
- 40
- 41 H. Roof system shall be installed in accordance with FM Global requirements.
- 42

43 1.22 EXAMINATION OF PREMISES

- 44
- 45 A. Before submitting proposals for his work, each contractor shall be held to have examined
- 46 the premises and satisfied himself as to the existing conditions under which he will be
- 47 obliged to work.
- 48

1.23 PROTECTION OF PERSONS AND PROPERTY

- A. 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 bid.
- B. The contractor shall erect and maintain, as required by existing conditions and performance of the contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.
- C. The contractor shall comply to all OSHA requirements and any other local, state or federal regulations pertaining to protection and safety of persons or property.
- D. 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.
- E. 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:
1. Removal, protection, preservation, or replacement and replanting of plant materials.
 2. Protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.
- F. Safety Precautions and Programs: The contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.
- G. Safety of Persons and Property: The contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:
1. Employees on the work and other persons who may be affected thereby.
 2. The work, materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the contractor or the contractor's Subcontractors or Sub-subcontractors.
 3. Other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1
2 H. The contractor shall give notices and comply in all respects with provisions and regulations
3 of any laws, acts, codes, ordinances, rules, regulations, and lawful orders of public
4 authorities that may be applicable to the performance of the work called for herein, and
5 that have bearing on the safety of persons or property, or their protection from damage,
6 injury, or loss.
7
8 I. Fire Safety: The contractor and all Subcontractors shall take all necessary precautions to
9 keep the premises free of fire and safety hazards. The contractor shall prevent all agents,
10 employees, licensees and invitees of the contractor from smoking on the Owner's
11 premises and from operating or using any flame, spark or explosion hazard producing
12 devices anywhere on or about the premises without the written approval of the Owner's
13 representative.
14
15 J. The contractor shall designate a responsible member of the contractor's organization at
16 the site whose duty shall be the prevention of accidents. This person shall be the
17 contractor's superintendent unless otherwise designated by the contractor in writing to the
18 Owner's representative.
19
20 K. The contractor shall not load or permit any part of the construction or site to be loaded so
21 as to endanger its safety.
22

23 1.24 EMERGENCY CALL
24

- 25 A. Twenty-four Hour Call: The contractor shall have personnel on call twenty-four (24) hours
26 per day, seven (7) days per week for emergencies during the course of a job. The
27 Owner's project manager is to have the twenty-four (24) hour numbers for the contact.
28 Contractor must be able to respond to any emergency call and have personnel on-site
29 within two (2) hours after contact. Numbers available to the Owner's project manager are
30 to be mobile, home and office numbers for:
31 1. Job Foreman
32 2. Job Superintendent
33 3. Owner or Company Officer
34

35 1.25 USE OF PREMISES
36

- 37 A. The Contractor is advised that the Owner will occupy the building at all times, and the
38 Contractor must provide all safeguards required to protect personnel and to keep noise
39 levels as low as reasonably possible for each operation.
40
41 B. The Contractor shall:
42 1. Coordinate work in such a manner as to not interfere with the normal operation of
43 the building.
44 2. Assume full responsibility for protection and safekeeping of products stored on
45 premises.
46 3. Agree to hold the Owner harmless in any and all liability of every nature and
47 description that may be suffered through bodily injuries, including death of any
48 persons by reason of negligence of the Contractor, agents, employees, or
49 Subcontractors.
50 4. The Contractor and all Subcontractors shall take all necessary precautions to
51 prevent the use of alcoholic beverages on the Owner's premises.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

C. Temporary Sanitary Facilities:

1. The contractor shall furnish and maintain temporary sanitary facilities for employees use during this project, including temporary toilets, wash facilities, and drinking water fixtures.
2. Toilet units shall be self-contained, single-occupant, of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
3. Facilities shall be installed where they will best service the project's needs, with Owner's/Owner's Representative's approval.
4. Contractor shall provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
5. All portable facilities shall comply with local laws, codes, and regulations.
6. Contractor shall be responsible to see that the units are removed in a timely manner after the completion of the project.

1.26 DEMOLITION

- A. All abandoned pitch pans, equipment, vents, curbs, and other such debris shall be removed by the Contractor. Abandoned items that require deck placement shall be marked by the Owner prior to proposal due date and/or the commencement of work. Contractor shall install new decking of like dimensions to provide a suitable substrate in areas where penetrations through the deck are removed.

1.27 JOB CONDITIONS

- A. 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 this work. No roof work shall be performed until the Owner's personnel have completed erection of the interior protection in that area.
- B. 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.
- C. 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.
- D. 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.
- E. 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1
2 F. The contractor shall follow local, state, and federal regulations, safety standards, and
3 codes for the removal, handling, and disposal of asbestos containing materials, if present.
4 When a conflict exists, use the stricter document.
5
6 G. Follow insurance underwriter's requirements acceptable for use with specified products or
7 systems.
8
9 H. Due caution should be exercised so as not to alter the structural integrity of the deck.
10 When cutting through any deck, care should be taken so as not to damage the deck or
11 any part of the deck, such as post tension cables, etc.
12
13 I. All kettles shall have an automatic thermostat control, and temperature gauge, all in
14 working order.
15
16 J. For further information regarding roofing material manufacturer's recommendations for
17 project conditions, refer to the manufacturer's published application manual.
18
19 K. The contractor is to be aware of the potential for roof leaks on the existing roof as a result
20 of ruptured blisters and/or roof mat damage caused by the vacuum process, foot traffic, or
21 material and equipment storage. The contractor is to take all necessary precautions to
22 prevent damage to the existing roof. All damage to the existing roof that could result in
23 roof leaks is to be repaired on a daily basis by the roofing contractor.
24
25 L. The contractor is to verify the location of all interior ducts, electrical lines, piping, conduit,
26 and/or similar obstructions. The contractor is to perform all work in such a manner as to
27 avoid contact with the above mentioned items.
28
29 M. Surface and air temperatures should be a minimum 45° F during applications of cleaner
30 and waterproof coating and remain above 45° F for a minimum of four (4) hours following
31 applications. Verify compatibility of cleaner with coatings, paints, primers and joint sealers
32 specified. Advise Owner's representative of any problems in this regard prior to
33 commencing cleaning operations.
34
35 N. Temporary Sanitary Facilities: The contractor shall furnish and maintain temporary
36 sanitary facilities for employees use during this project. These will be removed after the
37 completion of the project. All portable facilities shall comply with local laws, codes, and
38 regulations.
39
40 1.28 CREWS AND EQUIPMENT
41
42 A. Contractor shall provide sufficient crews and equipment so that the project may progress
43 without interruption or unnecessary delay.
44
45 1.29 SUBCONTRACTING OF WORK
46
47 A. The Owner shall have the right to accept or reject the use of any subcontractor. The
48 Contractor shall submit a list of proposed Subcontractors with his proposal.
49

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1 1.30 ON-SITE SUPERVISION
2

- 3 A. The Contractor is responsible for the management and control of the work. He shall give
4 his personal superintendence of the work or have a competent resident manager or
5 superintendent satisfactory to the Owner on the job site at all times while work is in
6 progress, with full authority to act for the Contractor as his agent.
7

8 1.31 INSPECTION OF WORK IN PROGRESS
9

- 10 A. The Owner's representative will require the material manufacturer's representative to
11 periodically examine the work in progress, as well as on completion, in order to assist in
12 ascertaining the extent the materials and labor procedures conform to the requirements of
13 the specifications.
14
15 B. The authorized material manufacturer's field representative shall be responsible for:
16 1. Keeping the Owner's representative informed after periodic inspections as to the
17 progress and quality of the work observed.
18 2. Calling to the attention of the Contractor those matters observed which are
19 considered to be in violation of the contract requirements.
20 3. Reporting to the Owner's representative, in writing, any failure or refusal of the
21 Contractor to correct unacceptable practices called to his attention.
22 4. Confirming, after completion of the work and based on his observation and test, that
23 he has observed no application procedures in conflict with these specifications.
24 Final payment will not be released until all specified warranties have been received
25 by the Owner.
26

27 1.32 FIELD INSPECTION AND CONTRACTOR RESPONSIBILITY
28

- 29 A. The Owner's representative shall at all times have access to the job site and work areas.
30 The Contractor will provide proper and safe facilities for such access and inspection.
31
32 B. Any time during the course of the project, an inspection may be deemed necessary by the
33 Owner/Owner's representative to have one or all of the following members of the
34 Contractor's organization present in person to inspect the work along with the
35 Owner/Owner's representative: Owner, a Majority Stockholder, President and/or Chief
36 Executive Officer of the contracting firm.
37
38 C. The Owner/Owner's representative, if deemed necessary, will notify in writing who in the
39 Contractor's organization they want to inspect the work on the roof in addition to the
40 Contractor's normal inspection. If the designated person or persons requested by the
41 Owner/Owner's representative fails to respond within forty-eight (48) hours to the request,
42 the work may be suspended, payment withheld and/or liquidated damages outlined in the
43 specifications assessed until such time the individual(s) inspect(s) the work with the
44 Owner/Owner's representative.
45

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- 1 D. Neither the presence nor absence of the Owner's representative nor the manufacturer's
2 representative, nor an inspection by the manufacturer of the work or operation of the
3 Contractor, nor any failure by the manufacturer to detect, pinpoint, or object to any defect
4 in the work completed, nor any deviation from these specifications, nor the acceptance by
5 the manufacturer of any such defect or the approval of the manufacturer of any such
6 deviation shall relieve the Contractor, or reduce, or in any way limit or divide, his full
7 responsibility for the full performance of the work required of him under these
8 specifications.
9
- 10 E. It shall be understood that such field inspection as the Owner's representative may cause
11 to be performed by the material manufacturer will be performed by the material
12 manufacturer solely for the benefit of the Owner and in an attempt to assist with the
13 requirements of this specification. These requirements bind the Contractor even without
14 such inspection.
15
- 16 F. No inspection or any act or omission of either the Owner's representative or the
17 manufacturer's representative in connection with such inspection shall prejudice the
18 Owner's right to strict conformance, or under any circumstances be construed to excuse or
19 mitigate any mistake or non-conformance by the Contractor.
20

21 **1.33 MANUFACTURER'S INSPECTION**
22

- 23 A. An inspection shall be made by a representative of the material manufacturer of the
24 completed project to ensure that said project was installed in accordance with the
25 manufacturer's specifications and illustrated details. Upon this approval of the project, the
26 specified warranty or warranties shall be written.
27

28 **1.34 FINAL INSPECTION**
29

- 30 A. Upon job completion, a final inspection will be made by Owner's representative. Final
31 payment will not be authorized for the work done until such inspection has been made and
32 all work is found to have been performed in accordance with the specifications and to the
33 satisfaction of the building Owner, and the specified warranties are issued.
34
- 35 B. The Contractor shall promptly remove any work that does not meet the requirements of
36 the plans and specifications or is incorrectly installed or otherwise disapproved by the
37 Owner as failing to meet with the plans and specifications. The Contractor shall promptly
38 replace any such work without expense to the Owner and shall bear the cost of making
39 good all work of other contractors or the Owner, destroyed or damaged by such removal
40 or replacement.
41

42 **1.35 ROOFTOP EQUIPMENT**
43

- 44 A. All air conditioning units and other rooftop equipment shall be moved by the roofing
45 Contractor as required to install roofing materials complete and in accordance with the
46 plans and specifications. When units or equipment are to be moved, they shall be
47 disconnected and moved by the roofing Contractor to a protected area so as not to
48 damage any part or component thereof, and shall be reset by the roofing Contractor and
49 reconnected at the Contractor's expense, all according to local building codes. All
50 disconnection and reconnection shall be performed by a mechanical and/or electrical
51 company licensed to perform such work and approved by the Owner's representative.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- 1
2 B. Where mechanical items, conduits, cables, raceways, piping or any other roof-top
3 mounted item must be moved in any manner, or disconnected and reconnected as made
4 necessary by the reroofing of the specified areas at the facility, all roof-top equipment,
5 piping, insulation, wires, fiber optic cable, any information systems components, conduits,
6 panels, motor starters, raceways, switches, antennas, satellite components, etc. shall be
7 replaced or renewed to match existing if damaged by Contractor. NOTE: It is the
8 responsibility of the Contractor to review the condition of any and all of the above noted, or
9 similar, items with authorized Owner personnel to determine condition of said items
10 PRIOR TO START OF WORK. If this review is not completed as prescribed, any and all
11 damage found at the end of the work will be repaired solely at the contractor's expense.
12
13 C. Any action by roofing contractor personnel which causes interruption of the ongoing works
14 of the Owner's facility will be repaired at the sole expense of the roofing contractor. Upon
15 interruption of the Owner's ability to meet required tasks, Owner may immediately, and
16 without the contractor's permission, take such action as necessary to repair said damage
17 so that the Owner's work may be resumed. The Owner has the obligation to notify the
18 contractor of such action as soon as possible, but in all cases must notify the contractor in
19 writing within 48 hours of the occurrence of the incident.
20
21 D. All gas piping to be removed, raised and reconnected shall be retested by a certified
22 Master Plumber and documented to comply with the State of Texas Railroad Commission.
23

24 1.36 NAILERS AND ROOF DECK

- 25
26 A. Contractor shall notify the Owner's representative of unforeseen areas of damaged
27 decking, fill material or deteriorated nailers. Where the damage is serious and extensive,
28 it will be the Owner's prerogative to authorize removal and replacement.
29
30 B. Any areas of unusual deck deflection noticed by the Contractor during the course of the
31 job that will cause an area of ponding water should be brought to the attention of the
32 Owner's representative by the Contractor.
33
34 C. The Contractor shall furnish the Owner with a unit price for removal and replacement of
35 the damaged decking, fill material or deteriorated nailers. All nailers required for the new
36 roofing application shall be provided by the roofing Contractor and included in the proposal
37 amount. Unit cost for nailers applies only to existing deteriorated nailers. If lumber is
38 required to make "flush" interior parapet wall, cost shall be included in Base Proposal.
39

40 1.37 CLEANING AND DISPOSAL OF MATERIALS

- 41
42 A. Contractor shall keep the job clean and free from all loose materials and foreign matter.
43 Contractor shall take necessary precautions to keep outside walls clean and shall allow no
44 roofing materials to remain on the outside walls.
45
46 B. All waste materials, rubbish, etc., shall be removed from the Owner's premises as
47 accumulated. Rubbish shall be carefully handled to reduce the spread of dust. A suitable
48 scrap chute or hoist must be used to lower any debris. At completion, all work areas shall
49 be left broom clean and all contractor's equipment and materials removed from the site.
50

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

C. All bituminous or roofing related materials shall be removed from ladders, stairs, railings, and similar parts of the building.

D. Debris shall be deposited at an approved disposal site.

1.38 FUTURE REPAIRS

A. Contractor certifies by acceptance of this project that any future repairs or alterations he might be called upon to execute after the project is complete, will be performed in accordance with the manufacturer's recommended procedures so as to not void the warranty.

END OF SECTION 01 10 00

**SECTION 01 23 00
ALTERNATES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
- C. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.
- D. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.
- E. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate.

1.03 PROCEDURES

- A. Proposers are required to submit alternate proposals to add work or to deduct work from the base proposal as described below. Failure to submit alternate amounts in spaces provided on the proposal form is the basis for disqualification of proposal. Indicating a "No Bid" for an alternate is also the basis for disqualification of proposal.
- B. The successful proposer shall not modify, withdraw or cancel any of the alternate proposals or any part thereof for 45 days after date of receipt of proposals, unless specifically noted otherwise.
- C. Contractor shall be responsible for any changes in the work affected by acceptance of these alternates.
- D. Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- 1 E. Claims for additional dollars resulting from changes caused by the alternates will not be
2 allowed.
3
4 F. Alternates will be exercised at the option of the Owner.
5
6 G. Coordinate related work and modify surrounding work as required to complete the Work,
7 including changes under each alternate, when acceptance is designated in the Owner-
8 Contractor Agreement.
9

10
11 **PART 2 - PRODUCTS (Not Applicable)**
12

13
14 **PART 3 – EXECUTION (Not Applicable)**
15
16
17
18
19

20 **END OF SECTION 01 23 00**

**SECTION 01 26 63
CHANGE ORDER PROCEDURES**

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Procedures for processing Change Orders.

1.02 SUBMITTALS

- A. Submit name of the individual authorized to accept changes, and to be responsible for informing others in contractor's employ of changes in the work.

- B. Change Order Forms: AIA G701

1.03 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME

- A. Maintain detailed records of work done on a time and material basis.
1. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the work.
- B. Document each quotation for a change in costs or time with sufficient data to allow evaluation of the quotation.
- C. Provide data necessary to support computations:
1. Quantities of products, labor, and equipment.
 2. Taxes, insurance and bonds.
 3. Labor burden for labor on a change will be established at 46% maximum allowed of labor cost. Labor burden is to include the cost FICA, workers compensation, state and federal unemployment, and health insurance.
 4. Justification for any change in contract time.
 5. Credit for deletions from contract, similarly documented.
- D. Support each claim for additional costs, and for work done on a time and material basis with additional information:
1. Origin and date of claim. Note: Claims for additional cost must be submitted within 10 days of claim to be considered.
 2. Dates and times work was performed, and by whom.
 3. Time records and wage rates paid.
 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.04 CONSTRUCTION CHANGE AUTHORIZATION

- A. Consultant/Owner may issue a directive, signed by the Owner, instructing contractor to proceed with a change in the work, for subsequent inclusion in a Change Order.
- B. Directive will describe changes in the work, and will designate method of determining any change in contract sum or contract time.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

1
2 C. Promptly execute the change in work.

3
4 1.05 LUMP SUM CHANGE ORDER

5
6 A. Will be based on proposal request and contractor's sum quotation, or contractor's request
7 for Change Order as approved by Consultant/Owner.

8
9 B. Contractor's overhead and profit shall not exceed 10% of the lump sum cost including
10 bonds and insurance.

11
12 1.06 UNIT PRICE CHANGE ORDER

13
14 A. For predetermined unit prices and quantities, Change Order will be executed on a lump
15 sum basis.

16
17 B. For unit costs or quantities of units of work that are not predetermined, execute work under
18 a construction change authorization.

19 1. Changes in contract sum or contract time will be computed as specified for time and
20 material Change Order.

21
22 C. Contractor's overhead and profit shall not exceed 10% of the unit price cost including
23 bonds and insurance.

24
25 1.07 TIME AND MATERIAL CHANGE ORDER

26
27 A. Submit itemized account and supporting data after completion of change.

28
29 B. Consultant/Owner will determine the change allowable in contract sum and contract time.

30
31 C. Contractor's overhead and profit shall not exceed 10% of the total of the time and material
32 cost including bonds and insurance.

33
34 1.08 EXECUTION OF CHANGE ORDERS

35
36 A. Consultant/Owner will issue Change Orders for signatures of parties.

37
38 1.09 CORRELATION OF CONTRACTOR SUBMITTALS

39
40 A. Promptly revise schedule of values and application for payment forms to record each
41 authorized Change Order as a separate line item and adjust the contract sum as shown on
42 the Change Order.

43
44 B. Promptly revise progress schedules to reflect any change in contract time, revise sub-
45 schedules to adjust times for other items of work affected by the change, and resubmit.

46
47
48 **END OF SECTION 01 26 63**

SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
1. Preconstruction photographs.
 2. Periodic construction photographs.
 3. Final Completion construction photographs.

1.02 SUBMITTALS

- A. Construction Photographs: Submit one print of each photographic view within ten (10) days of taking photographs. Submission shall be on 8.5" by 11" paper, printed two photographs per page in digital format.
1. Identification:
 - a) Below each print, provide a description of the view.
 - b) **Date photograph was taken shall be stamped by camera with the exception of Final Completion Construction Photographs.**
 2. Digital Images: With each submittal of prints also submit a complete set of digital image electronic files on CD-ROM or flash drive.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in uncompressed JPEG format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels.

PART 3 - EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the work. Photographs with blurry or out-of-focus areas will not be accepted.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Field Office Images: Maintain one set of images on CD-ROM or flash drive in the field office at project site, available at all times for reference.
- C. Preconstruction Photographs: Before commencement of demolition, take digital photographs of project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Project Manager.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1. Take ten (10) photographs per facility to show existing conditions of property before starting the work.
 2. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take minimum twenty (20) digital photographs per facility weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Project Manager-Directed Construction Photographs: From time to time, Project Manager will instruct photographer about number and frequency of additional digital photographs with general directions on vantage points to show the status of construction and progress since last photographs were taken.
- F. Final Completion Construction Photographs: Take ten (10) digital photographs per facility after date of Substantial Completion for submission as Project Record Documents. Project Manager will direct photographer for desired vantage points.
1. **Do not include date stamp.**

END OF SECTION 01 32 33

**SECTION 01 33 00
SUBMITTALS AND SUBSTITUTIONS**

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work includes: Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

1.02 QUALITY ASSURANCE

A. Coordination of submittals:

1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
2. Verify that each item and the submittal for it conform in all respects with the specified requirements.
3. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

B. Substitutions

1. The contract is based on the standards of quality established in the Contract Documents. Substitutions will be considered only when listed at time of bidding, on the form provided in the bidding documents, and when substantiated by the Contractor's submittal of required data within thirty-five (35) calendar days after award of the Contract.
2. The following products do not require further approval except for interface within the work:
 - a. Products specified by reference to standard specifications such as ASTM and similar standards.
 - b. Products specified by manufacturer's name and catalog model number.
3. Where any material is specified by proprietary name, trade name, name of manufacturer, generic name, or catalog number with the addition of such expressions as "or equal"/"or approved equal", it is understood that the material named is intended and no substitution will be allowed without written approval by the Owner's representative three (3) calendar days prior to proposal due date.
4. Should a specified material not be available, a substitution shall require approval (in writing) of the Owner's representative and the roof system manufacturer issuing the warranty before being utilized on this project.
5. Unless otherwise indicated, the materials to be used in this specification are those specified and denote the type, quality, performance, etc. required. All proposals shall be based upon the use of specified material.
6. Do not substitute materials, equipment, or methods unless substitution has been specifically approved in writing for this work by the Project Manager.

C. "Or equal"

1. Where the phrase "or equal", or "or equal as approved by the Project Manager", occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this work by the Project Manager.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

2. A Contractor who proposes to quote on the basis of an "or equal"/"or approved equal" alternate material or system shall submit to the Owner's representative the following information, at least five (5) calendar days prior to scheduled proposal opening. Only one request for substitution will be considered for each material or system. When substitution is not accepted, specified product or system shall be used.
 - a) A five (5) gallon sample of any adhesive, coating, mastic, or sealant and a three foot by five foot (3' x 5') sample of any sheeting or rolled goods as may be specified.
 - b) A certificate from an accredited testing laboratory comparing the physical and performance attributes of the proposed material with those of the specified materials.
 - c) A list of at least three (3) local jobs where the proposed alternate material was used under similar conditions and written documentation showing successful installation in the United States of similar size and scope for a minimum of ten (10) years. These jobs must be available for inspection by the Owner's representative.
 - d) In the event a substitution is acceptable by the Owner, all contractors shall be notified of the acceptable alternate within three (3) calendar days prior to proposal opening.
 - e) During the course of work, the Owner's representative may secure from the containers at the job site, samples of the materials being used and submit the samples to an independent testing laboratory for comparison. If the results of the independent testing laboratory prove that the materials are not comparable and equal to the specified materials, the Contractor shall pay for the testing and the Owner reserves the right to reduce the amount of the proposal by twenty percent (20%) if all work has already been completed before the test results become known. If the contract work is not completed when the test results become known, the Owner shall impose a penalty in proportion to the amount of work already completed, and all remaining work shall be completed with the specified materials.
- D. Procedure for Use of Substitution Request Form
 1. Substitution request **including all required documentation** must be delivered to the Owner's Representative's office no later than the date indicated in the specifications. Requests submitted late will not be considered.
 2. The Individual or Firm requesting a substitution must document that the requested substitution is equal or superior to the specified product. Failure to provide clear, accurate, and adequate documentation will be grounds for rejection.
 3. Required documentation shall consist of applicable information which would aid the Architect in making an informed decision. Include **side by side product comparisons**, technical data, laboratory test results, product drawings, etc.
 4. If use of the proposed product would result in changes to the design of the building, the submittal shall describe fully the changes required to the drawings or specifications. Any cost differences resulting from modifications to the drawings and specifications and the cost of making the changes shall be borne by the Product Supplier.
 5. **No** product will be considered "as equal" to the product specified until it has been included as an allowable substitution, in a written Addendum to the project.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1.03 SUBMITTALS

- A. Make submittals of Shop drawings, samples, Substitution Requests, and other items in accordance with the provisions of this section.
- B. Upon receipt of Notice of Acceptance of this proposal, the Contractor shall submit the following items. All submittals shall be submitted to the Owner/Owner's representative within ten (10) calendar days of the date on the Notice of Acceptance and prior to the award of contract.
 - 1. Contractor's executed insurance certificate.
 - 2. Material manufacturer's approval/acceptance of the specifications and details as written or noted for this project, fastener pattern layout, insulation, fasteners and all related materials.
 - 3. Contractor's executed payment and performance bonds as required.
 - 4. Shop drawings of all perimeter and projection details, and sheet metal details approved by manufacturer, for Owner's approval if proposed details differ from those included with this proposal package. These drawings shall be approved by the membrane manufacturer and submitted at the preconstruction conference for Owner review and approval prior to work start.
 - 5. Approved applicator must submit a roof drawing which will be employed in the project if proposed drawing differs from that included with this proposal package.
 - 6. Detailed project sequencing, staging, material loading, manpower plans, and detailed project construction schedule for approval.
 - 7. Copy of warranty application that has been sent to manufacturer.
 - 8. Sample of warranty that is to be issued upon project completion.
 - 9. Submit list of all mechanical, electrical, rigging, sheet metal, and other Subcontractors with evidence of Subcontractor's insurance coverage in compliance with contract requirements.
 - 10. Project superintendent's resume and project experience list for proposed system.
 - 11. Contractor shall submit written statement that their company or any Subcontractor they may use is not employing workers classified as undocumented workers on this project.
 - 12. Samples of all materials not supplied or prior approved by the roofing membrane manufacturer shall be submitted to the manufacturer for written approval prior to installation start.
 - 13. Submit waterproofing product data, including detailed test results of material applied to surfaces similar to requirements of this Section. Submit manufacturer's instructions for methods and application procedures.
- C. 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.
 - 6. Submit shop drawings, product data and mockups of all sheet metal.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- D. Samples and Manufacturer's Submittals for Sheet Metal and Miscellaneous Accessories:
Submit prior to deliver or installation.
1. Submit shop drawings, product data and mockups of all sheet metal.

PART 2 – PRODUCTS

2.01 SHOP DRAWINGS

- A. Scale and measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
- 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. Shop Drawings and Product Data:
1. Manufacturer's Details: All termination details and other details normally required by the membrane manufacturer's Technical Specifications, including both standard details and special details, shall be furnished by the Contractor and shall be approved in writing by the manufacturer, the company project manager, and the Owner's representative prior to final installation.
 2. As-built Drawings: Contractor shall supply the Owner with a full set of "as-built" drawings depicting location, size, nomenclature and manufacturer of all replaced roof slabs. One set of reproducible drawings, twenty-four inches by thirty-six inches (24" x 36"), shall be supplied along with one set of copies. Contractor shall also supply Owner with "as-built" roofing details as approved by the appropriate manufacturer with original manufacturer's seals and signatures thereon. Owner must have "as-built" drawings in hand prior to release of final payment to the Contractor.
 3. Initially submit three prints of each drawing or digital plans of each drawing, including fabrication, erection, layout and setting drawings, and other such drawings as required under various sections of the specifications until final approval is obtained.
 4. Date and mark shop drawings to show name of project, Owner, Contractor, origination Subcontractor, manufacturer or supplier, and separate details as pertinent.
 5. Shop drawings shall completely identify specification sections and locations at which materials or equipment are to be installed.
 6. Minimum drawing size shall be eight and one-half inches by eleven inches (8-1/2" x 11").
 7. Submit sufficient copies of manufacturer's descriptive data including catalog sheets for materials, equipment and fixtures, showing dimensions, performance characteristics and capacities, diagrams and controls, schedules, and other pertinent information required.
 8. Submit brochures and other submittal data that cannot be reproduced economically, in such quantities to allow the Owner to retain one copy of each after review. Mark product data to show the name of project, Owner, Contractor, originating Subcontractor, manufacturer or supplier, and separate details if pertinent.
 9. Product data shall completely identify specification sections and locations at which materials or equipment are to be installed.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

10. Accompany each submittal with a separate transmittal letter in duplicate, containing date, project title and number, Contractor's name and address, number of each shop drawing, product data and samples submitted, and notification of deviations from Contract Documents.

11. One (1) set of prints or a digital marked up copy of the submittals will be returned to the Owner for record. The cost of all printing is the responsibility of the Contractor.

D. Provide manufacturer's approved details, or all perimeter conditions, project conditions, and any additional special job conditions which require details other than indicated in the drawings.

E. Types of prints required: Submit Shop Drawings in the form of six (6) bond prints of each sheet or via digital media as selected by Architect/Project Manager

F. Review comments of the Project Manager will be shown on the copies when it is returned to the Contractor. The Contractor may make and distribute marked copies as are required for his purposes.

G. Fax submittals **are not acceptable**.

2.02 MANUFACTURER'S LITERATURE

A. Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show which portions of the contents is being submitted for review.

B. Submit the number of copies which are required to be returned, plus one copy which will be retained by the Project Manager.

2.03 MAINTENANCE PROCEDURES

A. 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.

2.04 SAMPLES

A. Provide sample or samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below.

B. Number of samples required:

1. Unless otherwise specified, submit samples in the quantity which is required to be returned, plus one which will be retained by the Project Manager.
2. By pre-arrangement in specific cases, a single sample may be submitted for review and, when approved, be installed in the work at a location agreed upon by the Project Manager.

2.05 COLORS AND PATTERNS

A. Unless the precise color and pattern are specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the Project Manager for selection.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 B. Contractor shall hold ALL color samples until all items requiring color selections are
2 received. Only then should the actual color samples be submitted for selections. Each
3 sample shall be properly labeled with the name of the project, contractor, manufacturer,
4 and date of submission. Incomplete color submittal will be returned to the Contractor.
5
6 C. The Contractor shall allow four weeks after all colors are submitted for final Owner
7 approval.
8
9

10 **PART 3 – EXECUTION**

11
12 3.01 IDENTIFICATION OF SUBMITTALS

- 13
14 A. Consecutively number all submittals.
15
16 B. Accompany each submittal with a letter of transmittal showing all information required for
17 identification and checking.
18 1. When material is re-submitted for any reason, transmit under a new letter of
19 transmittal and with a new transmittal number.
20 2. On re-submittals, cite the original submittal number for reference.
21
22 C. On at least the first page of each submittal, and elsewhere as required for positive
23 identification, show the submittal number in which the item was included.
24
25 D. Maintain an accurate submittal log for the duration of the work, showing current status of
26 all submittals at all times. Make the submittal log available to the Project Manager for his
27 review upon request.
28

29 3.02 TIMING OF SUBMITTALS

- 30
31 A. Make submittals far enough in advance of scheduled dates for installation to provide time
32 required for reviews, for securing necessary approvals, for possible revisions and re-
33 submittals, and for placing orders and securing delivery.
34
35 B. Revisions:
36 1. Make revisions required by the Project Manager.
37 2. If the Contractor considers any required revision to be a change, They shall so notify
38 the Project Manager.
39 3. Make only those revisions directed or approved by the Project Manager.
40
41
42
43

END OF SECTION 01 33 00

**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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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 Manager, Contractor's General Superintendent, the Owner's 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's 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's 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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. Three Point Inspection Plan: The Quality Control Manager 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:

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 The FORT BEND COUNTY Project Administrator shall be notified a minimum of
2 seventy-two (72) hours prior to the beginning of any initial inspection. The Contractor's
3 Quality Control Manager will chair the initial inspection. The results of the initial
4 inspection shall be documented by separate minutes prepared by the Quality Control
5 Manager and attached to the daily quality control summary report.
- 6 3. Follow-up Phase: Daily checks shall be performed to assure continuing compliance
7 with contract requirements, including control testing, until completion of the particular
8 feature of work. The checks shall be made a matter of record in the QC
9 documentation. Final follow-up checks shall be conducted and all deficiencies
10 corrected prior to the start of additional features or work, which may be affected by the
11 deficient work. The Contractor shall not build upon or conceal non-conforming work.
- 12 4. Additional Preparatory and Initial Phases: Additional preparatory and initial phases
13 may be conducted on the same definable features of work as determined by the
14 Owner if the quality of ongoing work is unacceptable; or if there are changes in the
15 applicable QC staff or in the on-site production supervision or work crew; or if work on
16 a definable feature is resumed after a substantial period of inactivity, or if other
17 problems develop.
- 18 5. Pre-Final Acceptance Inspection: When the work is completed, the Contractor shall
19 make a written required for Pre-Final Inspection in accordance with the General
20 Conditions, giving the Owner at least seventy-two (72) hours advance notice. The
21 Project Administrator will schedule the Pre-Final Acceptance Inspection and will
22 prepare a list of deficient or incomplete items (Punch List) discovered during the
23 inspection. The Punch List will be transmitted to the Contractor for correction of the
24 deficient or incomplete items. Following correction of the deficient or incomplete items
25 and notification by the Contractor in accordance with the General Conditions, the
26 Project Administrator and the Engineer will conduct the Final Acceptance inspection.
- 27 6. Punch List: During Pre-Final or Final Acceptance inspections, Work that is found to be
28 incomplete, needing repair or in Nonconformance with the contract requirements such
29 as loose bolts, damage, unsatisfactory workmanship, etc., will be identified on a Punch
30 List. The Punch List will be distributed to the Contractor, the Engineer and the
31 Inspector Team, by the Project Administrator in accordance with the General
32 Conditions.
- 33 7. Final Acceptance Inspection: After the Contractor has completed all items on the
34 Punch List (generated from the Pre-Final Acceptance Inspection) he shall request a
35 Final Acceptance Inspection on a definite date. Seventy-two (72) hours advance
36 notice shall be given to the Owner. Upon verification by the Engineer that the work is
37 ready for Final Inspection and Acceptance, the Owner will within ten (10) calendar
38 days make Final Inspection.

39
40 1.06 DEFICIENT AND NON-CONFORMING WORK

41
42 A. General:

- 43 1. Workmanship or materials which are found to be not in conformance with the
44 Contract Documents shall be identified with a Deficiency issued by the Contractor's
45 Quality Control Manager.
- 46 2. FORT BEND COUNTY reserves the right to maintain a staff of inspectors for random
47 sampling of the materials and the work for conformance to Contract Documents.
48 This does not relieve the Contractor in any way from his responsibility of Quality
49 Control.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- 1 D. Notice of Nonconformance: A Notice of Nonconformance will be issued to the Contractor
2 by the FORT BEND COUNTY Project Administrator whenever there are violations of the
3 terms of the Contract, including materials received and/or completed items of the Work
4 found to be in nonconformance with contract requirements. Work not in conformance with
5 the Contract Documents can be identified as work or materials that cannot be corrected
6 and must be replaced, work that in order to correct it must have a deviation from Contract
7 Documents approved, or work in which an item must be substituted in lieu of payment for
8 elements noted and will remain in effect until corrective actions have been submitted,
9 approved and performed. The Notice of Nonconformance form will fully describe the
10 nature and extent of nonconforming elements and will include a space for the Contractor's
11 Corrective Action Proposal, the Engineer review of the Contractor's Proposal, FORT
12 BEND COUNTY reinspection and/or verification of approved corrective rework and a
13 space for the FORT BEND COUNTY Project Administrators disposition of the
14 nonconformance matter.
15
- 16 E. Corrective Action: Correction of Deficient or Nonconforming Work will be monitored by the
17 FORT BEND COUNTY. FORT BEND COUNTY will verify that the Deficient or
18 Nonconforming work has been corrected, corrective action has been taken to prevent
19 recurrence, and will record when the correction was completed. Significant conditions
20 adverse to quality will be reviewed by the FORT BEND COUNTY to determine the cause
21 and to review the Contractor's recommended corrective action that will preclude
22 recurrence. Follow-up action shall be taken to verify implementation of the corrective
23 action. The corrective action will be documented by FORT BEND COUNTY.
24

25 1.07 QUALITY CONTROL OF PRODUCT DELIVERY
26

- 27 A. Inspection of Products and Equipment to be incorporated into the work.
28 1. Products and equipment delivered to the project site shall be subject to inspection by
29 the Quality Control Manager for conformance with the Contract Documents and
30 Submittals, prior to incorporation into the Work. FORT BEND COUNTY inspectors
31 may monitor the Contractor's inspection procedures.
32 2. All products and equipment furnished by FORT BEND COUNTY and delivered to the
33 project site shall be inspected by a FORT BEND COUNTY Inspector and the Quality
34 Control Manager for shipping damage, and for identification and quantity, prior to
35 incorporation into the Work.
36 3. Items which are found to be in nonconformance with Contract requirements shall be
37 identified, issued a Deficiency by the Quality Control Manager and segregated from
38 accepted products and equipment. These items shall not be incorporated into the
39 Work until corrective action acceptable to FORT BEND COUNTY and the Engineer
40 has been completed.
41 4. Special requirements for storage, handling and tracking of hazardous material shall
42 be monitored in strict accordance with Materials Safety Data Sheet requirements.
43 5. Items which are determined to have been improperly shipped, stored, or handled
44 shall be deemed deficient and shall not be incorporated into the Work until the
45 manufacturer has inspected the item in question and determined the repair work or
46 corrective actions necessary to validate the product warranty or restore the product
47 to like new condition, subject to approval of the Owner.
48

1 1.08 DOCUMENTATION
2

- 3 A. The Contractor shall maintain current records of quality control operations, activities, and
4 tests performed, including the work of subcontractors and suppliers. These records shall
5 be on the sample forms included herein and shall include factual evidence that required
6 quality control activities and specified tests have been performed, including but not limited
7 to the following:
8 1. Contractor/subcontractor and their area of responsibility.
9 2. Operating plan/equipment with hours worked, idle or down for repair.
10 3. Work performed today, giving location, description, and by whom.
11 4. Test and/or control activities performed with results and reference to Contract
12 requirements. The control phase shall be identified (Preparatory, Initial and
13 Follow-up). List deficiencies noted along with corrective action.
14 5. Material received with statement as to its acceptability and storage.
15 6. Identify submittals reviewed, with contract reference, by whom, and action taken.
16 7. Off-site surveillance activities, including actions taken.
17 8. Job safety evaluations stating what was checked, results and instructions or
18 corrective actions.
19 9. Record instructions given/received in the field.
20
21 B. These records shall indicate a description of trades working on the project; weather
22 conditions encountered; and any delays encountered. These records shall cover both
23 conforming and deficient features and shall include a statement that equipment and
24 materials incorporated in the work and workmanship comply with the contract. The
25 original of these records in report form shall be furnished to the Owner daily within
26 twenty-four (24) hours after the date(s) covered by the report, including reports for days on
27 which no work is performed. All calendar days shall be accounted for throughout the life
28 of the Contract. Reports shall be signed and dated by the QC Manager. The report from
29 the QC Manager shall include copies of test reports and copies of reports prepared by all
30 subordinate quality control personnel.
31

32 1.09 QUALITY CONTROL OF REGULATORY REQUIREMENTS
33

- 34 A. Inspection of Clean Water Act Section 402(p): Provide Inspections required by
35 Section 402(p) as follows:
36 1. Inspection shall as a minimum be performed once every seven (7) days or within
37 twenty-four (24) hours of rainfall of one-half inch (1/2") or more. If the area in which
38 the construction activity is taking place is an arid or semi-arid zone, (10 to 20 inches
39 annual rainfall average or less), the requirement for reporting is still within twenty-
40 four (24) hours of a one-half inch (1/2") rainfall, but only once every thirty (30) days if
41 no such rainfall occurs.
42 2. Inspections shall observe:
43 a) Disturbed areas, areas used for storage of materials exposed to precipitation,
44 structural control methods and areas where vehicles enter and exit site.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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 01 50 00
TEMPORARY FACILITIES**

PART 1 - GENERAL

1.01 SUMMARY

- A. This section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities which may be required include but are not limited to:
 - 1. Water service and distribution
 - 2. Temporary electric power and light
 - 3. Telephone service
- C. Temporary construction and support facilities which may be required include but are not limited to:
 - 1. Temporary heat
 - 2. Storage sheds
 - 3. Sanitary facilities
 - 4. Temporary enclosures
 - 5. Hoists and temporary elevator use
 - 6. Temporary Project identification signs and bulletin boards
 - 7. Waste disposal services
 - 8. Construction aids and miscellaneous services and facilities
- D. Security and protection facilities which may be required include but are not limited to:
 - 1. Temporary fire protection
 - 2. Barricades, warning signs, lights
 - 3. Sidewalk bridge or enclosure fence for the site
 - 4. Environmental protection

1.02 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within fifteen (15) days of the date established for commencement of the work.

1.03 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
 - 1. Building Code requirements
 - 2. Health and safety regulations
 - 3. Utility company regulations
 - 4. Police, Fire Department and Rescue Squad rules
 - 5. Environmental protection requirements

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1
2 B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition
3 Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and
4 Demolition", and NECA Electrical Design Library, "Temporary Electrical Facilities."
5 1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services",
6 prepared jointly by ABG and ASC, for industry recommendations.
7
8 C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary
9 utility before use. Obtain required certifications and permits.
10

11 **1.04 PROJECT CONDITIONS**
12

- 13 A. Temporary Utilities: Prepare a schedule indicating dates for implementation and
14 termination of each temporary utility. At the earliest feasible time, when acceptable to the
15 Owner, change over from use of temporary service to use of the permanent service.
16
17 B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance.
18 Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not
19 overload facilities, or permit them to interfere with progress. Do not allow hazardous
20 dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
21

22
23 **PART 2 - PRODUCTS**
24

25 **2.01 MATERIALS**
26

- 27 A. General: Provide new materials. If acceptable to the Architect, undamaged previously
28 used materials in serviceable condition may be used. Provide materials suitable for the
29 use intended.
30
31 B. Lumber and Plywood: Comply with requirements in Division 6 – Rough Carpentry section.
32 1. For job-built temporary offices, shops and sheds within the construction areas,
33 provide UL labeled, fire treated lumber and plywood for framing, sheathing and
34 siding.
35 2. For signs and directory boards, provide exterior type, Grade B-B High Density
36 Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness
37 indicated.
38 3. For fences and vision barriers, provide exterior type, minimum three-eighths inch
39 (3/8") thick plywood.
40 4. For safety barriers, sidewalk bridges and similar uses, provide minimum five-eighths
41 inch ((5/8") thick exterior plywood.
42
43 C. Paint: Comply with requirements of Division 9 – Finish Painting section.
44 1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and
45 plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
46 2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel
47 over exterior primer.
48
49 D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread
50 rating of 15 or less. For temporary enclosures provide translucent nylon reinforced
51 laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1 E. Water: Provide portable water approved by local health authorities.

2
3 F. Open-Mesh Fencing: Provide 11-gauge, galvanized two inch (2"), chain link fabric fencing
4 six feet (6") high with galvanized barbed wire top strand and galvanized steel pipe posts,
5 one and one-half inches (1-1/2") in diameter for line posts and two and one-half inches
6 (2-1/2") in diameter for corner posts.

7
8 **2.02 EQUIPMENT**
9

10 A. General: Provide new equipment. If acceptable to the Architect, undamaged, previously
11 used equipment in serviceable condition may be used. Provide equipment suitable for use
12 intended.

13
14 B. Water Hoses: Provide three-fourths inch (3/4") heavy-duty, abrasion-resistant, flexible
15 rubber hoses one hundred feet (100') long, with pressure rating greater than the maximum
16 pressure of the water distribution system. Provide adjustable shut-off nozzles at hose
17 discharge.

18
19 C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion
20 of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with
21 ground-fault circuit interrupters, reset button and pilot light, for connection of power tools
22 and equipment.

23
24 D. Electrical Power Cords: Provide grounded extension cords. Use "hard-service" cords
25 where exposed to abrasion and traffic. Provide waterproof connectors to connect
26 separate lengths of electric cords if single lengths will not reach area where construction
27 activities are in progress.

28
29 E. Temporary Storage Sheds: Provide fabricated or mobile units with lockable entrances.
30 Provide heated units on foundations adequate for normal loading.

31
32 F. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the
33 chemical, aerated recirculation, or combustion type, properly vented and fully enclosed
34 with a glass fiber reinforced polyester shell or similar nonabsorbent material.

35
36 G. First Aid Supplies: Comply with governing regulations.

37
38 H. Fire Extinguishers: Provide hand-carried, portable UL-rated, Class A fire extinguishers for
39 temporary offices and similar spaces. In other locations provide hand-carried, portable,
40 UL-rated, Class ABC dry chemical extinguishers, or a combination of extinguishers of
41 NFPA recommended classes for the exposures.

42 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size
43 required by location and class of fire exposure.
44

45 **PART 3 - EXECUTION**
46

47 **3.01 INSTALLATION**
48

49 A. Use qualified personnel for installation of temporary facilities. Locate facilities where they
50 will serve the Project adequately and result in minimum interference with performance of
51 the work. Relocate and modify facilities as required.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1
2 B. Provided each facility ready for use when needed to avoid delay. Maintain and modify as
3 required. Do not remove until facilities are no longer needed, or are replaced by
4 authorized use of completed permanent facilities.
5

6 3.02 TEMPORARY UTILITY INSTALLATION
7

- 8 A. Use Charges: Cost or use changes for temporary facilities are not chargeable to the
9 Owner or Architect and will not be accepted as a basis of claims for a Change Order.
10
11 B. Water Service: Install water service and distribution piping of sizes and pressures
12 adequate for construction until permanent water service is in use.
13 1. Sterilization: Sterilize temporary water piping prior to use.
14
15 C. Temporary Electric Power Service: Provide weatherproof, grounded electric power
16 service and distribution system of sufficient size, capacity, and power characteristics
17 during construction period. Include transformers, overload protected disconnects,
18 automatic ground-fault interrupters and main distribution switch gear.
19 1. Power Distribution System: Install wiring overhead and rise vertically where least
20 exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts,
21 AC 20 ampere rating, and lightning circuits may be nonmetallic sheathed cable
22 where overhead and exposed for surveillance.
23

24 3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION
25

- 26 A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and
27 support facilities for easy access.
28 1. Maintain temporary construction and support facilities until Final Completion.
29 Remove prior to final application for payment. Where temporary construction or
30 facilities interfere with the Owner's use or occupation of the work after Substantial
31 Completion, remove, relocate or modify temporary construction and facilities as
32 required to permit Owner's use and occupancy.
33 2. Provide insulated, weathertight offices of sufficient size to accommodate required
34 office personnel at the Project Site.
35
36 B. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished
37 and equipped to accommodate materials and equipment involved, including temporary
38 utility service.
39
40 C. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures.
41 Comply with regulations and health codes for the type, number, location, operation and
42 maintenance of fixtures and facilities. Install where facilities will best service the Project's
43 needs.
44 1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for
45 each facility. Provide covered waste containers for used material.
46 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of
47 pit-type privies will not be permitted.
48 3. Wash Facilities: Install wash facilities supplied with portable water at convenient
49 locations for personnel involved in handling materials that require wash-up for a
50 healthy and sanitary condition. Dispose of drainage properly. Supply cleaning
51 compounds appropriate for each condition.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 D. Drinking Water Fixtures: Provide drinking water fountains where required for compliance
2 with regulations and health codes, including paper supply.
3
- 4 E. Temporary Enclosures: Provide temporary enclosure for protection of construction in
5 progress and completed, from exposure, foul weather, other construction operations and
6 similar activities.
7 1. Where heat is needed and the permanent building enclosure is not complete, provide
8 temporary enclosure where there is no other provision for containment of heat.
9 Coordinate enclosure with ventilating and material drying or curing requirements to
10 avoid dangerous conditions and effects.
11 2. Install tarpaulins securely, with incombustible wood framing and other materials.
12 Close openings of twenty-five (25) square feet or less with plywood or similar
13 materials.
14 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing
15 wood-framed construction.
16 4. Where temporary wood or plywood enclosure exceeds one hundred (100) square
17 feet in area, use UL-labeled fire-retardant treated material for framing and main
18 sheathing.
19
- 20 F. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck
21 cranes and similar devices used for hoisting materials are considered "tools and
22 equipment" and not temporary facilities.
23
- 24 G. Project Identification and Temporary Signs: Display no signs without approval of the
25 Architect. Do not permit installation of unauthorized signs.
26
- 27 H. Project Identification Signs: Engage an experienced sign painter to apply graphics.
28 Comply with the following drawings, attached herein.
29
- 30 I. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere
31 daily. Comply with requirements of NFPA 241 for removal of combustible waste material
32 and debris. Enforce requirements strictly. Do not hold materials more than seven (7)
33 days during normal weather or three (3) days when the temperature is expected to rise
34 above 80° F. Handle hazardous, dangerous or unsanitary waste materials separately
35 from other waste by containerizing properly. Dispose of material in a lawful manner.
36

37 **3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION**
38

- 39 A. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities,
40 install and maintain temporary fire protection facilities of the types needed to protect
41 against reasonably predictable and controllable fire losses. Comply with NFPA 10
42 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding
43 Construction, Alterations and Demolition Operations."
44
- 45 B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for
46 erection of structurally adequate barricades. Paint with appropriate colors, graphics and
47 warning signs to inform personnel and the public of the hazard being protected against.
48 Where appropriate and needed, provide lighting, including flashing red or amber lights.
49

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 C. Enclosure Fence: When excavation begins, install an enclosure fence with lockable
2 entrance gates. Locate where indicated, or enclose the entire site or the portion
3 determined sufficient to accommodate construction operations. Install in a manner that
4 will prevent people, dogs and other animals from easily entering the site, except by the
5 entrance gates.
6 1. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of
7 gravel and earth.
8
9 D. Security Enclosure and Lockup: Install substantial temporary enclosure of partially
10 completed areas of construction. Provide locking entrances to prevent unauthorized
11 entrance, vandalism, theft and similar violations of security.
12
13 E. Storage: Where materials and equipment must be stored, and are of value or attractive for
14 theft, provide a secure lockup. Enforce discipline in connection with the installation and
15 release of materials to minimize the opportunity for theft and vandalism.
16
17 F. Environmental Protection: Provide protection, operate temporary facilities and conduct
18 construction in ways and by methods that comply with environmental regulations, and
19 minimize the possibility that air, waterways and subsoil might be contaminated or polluted,
20 or that other undesirable effects might result. Avoid use of tools and equipment which
21 produce harmful noise. Restrict use of noise making tools and equipment to hours that
22 will minimize complaints from persons or firms near the site.
23

24 **3.05 OPERATION, TERMINATION AND REMOVAL**

- 25
26 A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of
27 temporary facilities to essential and intended uses to minimize waste and abuse.
28
29 B. Termination and Removal: Unless the Architect requires that it be maintained longer,
30 remove each temporary facility when the need has ended, or when replaced by authorized
31 use of a permanent facility, or no later than Substantial Completion. Complete or, if
32 necessary, restore permanent construction that may have been delayed because of
33 interference with the temporary facility. Repair damaged work, clean exposed surfaces
34 and replace construction that cannot be satisfactorily repaired.
35 1. Materials and facilities that constituted temporary facilities are property of the
36 Contractor. The Owner reserves the right to take possession of Project identification
37 signs.
38 2. At substantial Completion, clean and renovate permanent facilities that have been
39 used during the construction period, including but not limited to:
40 a) Replace air filters and clean inside of ductwork and housings.
41 b) Replace significantly worn parts and parts that have been subject to unusual
42 operating conditions.
43 c) Replace lamps that are burned out or noticeably dimmed by substantial hours of
44 use.
45
46
47
48

END OF SECTION 01 50 00

**SECTION 01 77 00
PROJECT CLOSEOUT**

PART 1 - GENERAL

1.01 SUMMARY

A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Observation procedures
2. Project record document submittal
3. Operating and maintenance manual submittal
4. Submittal of warranties
5. Final cleaning

1.02 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting observation for certification of Substantial Completion, complete the following. List exceptions in the request.
1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show one hundred percent (100%) completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 2. If one hundred percent (100%) completion cannot be shown, include a list of incomplete items, the value of incomplete construction and reasons the work is not complete.
 3. Advise Owner of pending insurance change-over requirements.
 4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 5. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 6. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey and similar final record information.
 7. Deliver tools, spare parts, extra materials and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable. Extra materials include but are not necessarily limited to those listed in the "Summary of Extra Materials" following this section.
 8. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
 9. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups and similar elements.
- B. Observation Procedures: On receipt of a request for observation, the Project Manager will either proceed with observation or advise the Contractor of unfilled requirements. The Project Manager will prepare the Certificate of Substantial Completion following observation, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

1. The Project Manager will repeat observation when requested, and be assured by the Contractor in writing, that the work has been substantially completed.
2. Results of the completed observation will form the basis of requirements for final acceptance.

1.03 FINAL ACCEPTANCE

- A. Preliminary Procedures:** Before requesting final observation for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Project Manager's final observation list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Project Manager.
 4. Submit consent of surety to final payment.
 5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 6. Complete final clean up requirements, including touchup painting. Touchup and otherwise repair and restore marred exposed finishes.
- B. Re-observation Procedure:** The Project Manager will re-observe the work upon receipt of notice that the work, including observation list items from earlier observations, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Project Manager.
1. Upon completion of re-observation, the Project Manager will prepare a certificate of final acceptance or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 2. If necessary, re-observation will be repeated.
 3. Should the Project Manager perform re-observations, due to failure of the work to comply with the claims of status of completion made by the Contractor, the Owner shall compensate the Project Manager for additional services; and the Owner shall deduct the amount of the compensation from the final payment to the Contractor.

1.04 RECORD DOCUMENT SUBMITTALS

- A. General:** Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Project Manager's reference during normal working hours.
- B. Record Drawings:** Maintain a clean, undamaged set of black line white-prints of Contract Drawings and Shop Drawings in hard copy or in digital format. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

1. Mark record sets with colored erasable pencil, and use other colors to distinguish between variations in separate categories of the work. Use the following color code:
 - a) Red for Architectural work
 - b) Blue for Structural work
 - c) Green for Plumbing work
 - d) Orange for HVAC work
 - e) Brown for Electrical work
 - f) Black for other written notations
 2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
 3. Note related Change Order numbers where applicable.
 4. At completion of project, transfer all Project Record Data to one complete set of mylar sepias using mylar compatible-colored pencils or ink. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Deliver one complete set of mylar sepias of all drawings to the Project Manager for the Owner's records. The cost of printing the mylar sepias shall be paid by the Contractor.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.
1. Upon completion of the work, submit record Specifications to the Project Manager for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in the actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
1. Upon completion of mark-up, submit complete set of record Product Data to the Project Manager for the Owner's records.
- E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Project Manager and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- F. Miscellaneous Record Submittals: Refer to other Specification sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Project Manager for the Owner's records.
- G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty two inch (2"), three-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
1. Emergency instructions
 2. Spare parts list
 3. Copies of warranties
 4. Wiring diagrams
 5. Recommended "turn around" cycles
 6. Observation procedures
 7. Shop Drawings and Product Data
 8. Fixture lamping schedule

PART 2 - PRODUCTS

2.01 CLEANING AGENTS

- A. Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:
1. Maintenance manuals
 2. Record documents
 3. Spare parts and materials
 4. Hazards
 5. Cleaning
 6. Warranties and bonds
 7. Maintenance agreements and similar continuing commitments

3.02 FINAL CLEANING

- A. General: General cleaning during construction is required by the General Conditions and included in "Temporary Facilities" section.
- B. Cleaning: Employ experienced cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 - 1. Complete the following cleaning operations before requesting Certification of Substantial Completion.
 - 2. Remove labels that are not permanent labels.
 - 3. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 - 4. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 - 5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 - 6. Clean the site, including landscape development areas, of rubbish, litter and foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials to the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
 - 1. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 01 77 00

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

**SECTION 01 78 36
APPLICATOR WARRANTY**

WHEREAS _____

[PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE]

OF (ADDRESS): _____

HEREIN CALLED THE "CONTRACTOR", HAS PERFORMED ROOFING AND ASSOCIATED WORK ON THE FOLLOWING PROJECT.

OWNER: _____

ADDRESS _____

BUILDING NAME AND AREAS: _____

BUILDING ADDRESS: _____

AREAS (S) OF WORK: _____ DATE OF ACCEPTANCE _____

WARRANTY PERIOD: _____ DATE OF EXPIRATION _____

AND WHEREAS THE CONTRACTOR HAS CONTRACTED WITH OWNER TO WARRANT SAID WORK AGAINST LEAKS AND FAULTY OR DEFECTIVE MATERIALS AND WORKMANSHIP FOR DESIGNATED WARRANTY PERIOD.

NOW THEREFORE THE CONTRACTOR HEREBY WARRANTS, SUBJECT TO TERMS AND CONDITIONS HEREIN SET FORTH, THAT DURING WARRANTY PERIOD HE WILL AT HIS OWN COST AND EXPENSE, MAKE OR CAUSE TO BE MADE SUCH REPAIRS TO OR REPLACEMENTS OF SAID WORK AS ARE NECESSARY TO CORRECT FAULTY AND DEFECTIVE WORK, AND AS ARE NECESSARY TO MAINTAIN SAID WORK IN WATERTIGHT CONDITION.

THIS WARRANTY IS MADE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. SPECIFICALLY EXCLUDED FROM THIS WARRANTY ARE DAMAGES TO WORK AND OTHER PARTS OF THE BUILDING, AND TO BUILDING CONTENTS, CAUSED BY: (A) LIGHTNING, WINDSTORM IN EXCESS OF 130 MILES PER HOUR WIND SPEED, HAILSTORM, AND OTHER UNUSUAL PHENOMENA OF THE ELEMENTS; (B) FIRE; (C) FAILURE OF ROOFING SYSTEM SUBSTRATE INCLUDING CRACKING, SETTLEMENT, EXCESSIVE DEFLECTION, DETERIORATION, AND DECOMPOSITION; (D) FAULTY CONSTRUCTION OF VENTS, EQUIPMENT SUPPORTS, AND OTHER PENETRATIONS OF THE WORK; (E) REPEATED VAPOR CONDENSATION ON BOTTOM OF ROOFING; AND (F) ACTIVITY ON ROOFING BY OTHER PERSONS INCLUDING CONSTRUCTION CONTRACTORS AND MAINTENANCE PERSONNEL, WHETHER AUTHORIZED OR UNAUTHORIZED BY OWNER. WHEN WORK HAS BEEN DAMAGED BY ANY OF THE FOREGOING CAUSES, WARRANTY SHALL BE NULL AND VOID UNTIL SUCH DAMAGE HAS BEEN REPAIRED BY THE CONTRACTOR, AND UNTIL COST AND EXPENSE THEREOF HAS BEEN PAID BY THE OWNER OR BY ANOTHER RESPONSIBLE PARTY SO DESIGNATED.
2. THE CONTRACTOR IS RESPONSIBLE FOR WORK COVERED BY THIS WARRANTY, BUT IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES TO BUILDING OR BUILDING CONTENTS RESULTING FROM LEAKS OR FAULTS OR DEFECTS OF WORK.
3. DURING WARRANTY PERIOD, IF THE OWNER ALLOWS ALTERATIONS OF WORK BY ANYONE OTHER THAN THE CONTRACTOR, INCLUDING CUTTING, PATCHING AND MAINTENANCE IN CONNECTION WITH PENETRATIONS, ATTACHMENT OF OTHER WORK, AND POSITIONING OF ANYTHING ON ROOF, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID ALTERATIONS, BUT ONLY TO EXTENT SAID

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

ALTERATIONS AFFECT WORK COVERED BY THIS WARRANTY. IF THE OWNER ENGAGES THE CONTRACTOR TO PERFORM SAID ALTERATIONS, WARRANTY SHALL NOT BECOME NULL AND VOID, UNLESS THE CONTRACTOR, PRIOR TO PROCEEDING WITH SAID WORK, SHALL HAVE NOTIFIED THE OWNER IN WRITING THAT SAID ALTERATIONS WOULD LIKELY DAMAGE OR DETERIORATE THE WORK, THEREBY REASONABLY JUSTIFYING A LIMITATION OR TERMINATION OF THIS WARRANTY.

4. DURING WARRANTY PERIOD, IF ORIGINAL USE OF ROOF IS CHANGED AND IT BECOMES USED FOR, BUT WAS NOT ORIGINALLY SPECIFIED FOR, A PROMENADE, WORK DECK, SPRAY COOLED SURFACE, FLOODED BASIN, OTHER USE OR SERVICE MORE SEVERE THAN ORIGINALLY SPECIFIED, THIS WARRANTY SHALL BECOME NULL AND VOID UPON DATE OF SAID CHANGE, BUT ONLY TO EXTENT SAID CHANGES AFFECT WORK COVERED BY THIS WARRANTY.
5. THE OWNER SHALL PROMPTLY NOTIFY THE CONTRACTOR OF OBSERVED, KNOWN, OR SUSPECTED LEAKS, DEFECT OF DETERIORATION, AND SHALL AFFORD REASONABLE OPPORTUNITY FOR THE CONTRACTOR TO INSPECT THE WORK, AND TO EXAMINE EVIDENCE OF SUCH LEAKS, DEFECTS OR DETERIORATION.
6. THIS WARRANTY IS RECOGNIZED TO BE THE ONLY WARRANTY OF THE CONTRACTOR ON SAID WORK, AND SHALL NOT OPERATE TO RESTRICT OR CUT OFF THE OWNER FROM OTHER REMEDIES AND RESOURCES LAWFULLY AVAILABLE TO HIM IN CASES OF ROOFING FAILURE. SPECIFICALLY, THIS WARRANTY SHALL NOT OPERATE TO RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMANCE OF ORIGINAL WORK.

IN WITNESS THEREOF, THIS INSTRUMENT HAS BEEN DULY EXECUTED THIS _____ DAY OF _____, 2009

SIGNATURES:

CONTRACTOR:

(PRINT OR TYPE FULL NAME OF PROPRIETORSHIP, PARTNERSHIP, CORPORATION, OR JOINT VENTURE)*1

ORGANIZATION:

[CHECK ONE]

☐ PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ JOINT VENTURE

*IF JOINT VENTURE, ADD ADDITIONAL BID FORM SIGNATURE SHEETS FOR EACH JOINT VENTURE MEMBER.

BY:

[SIGNATURE]

[DATE]

NAME:

[PRINT OR TYPE NAME]

[TITLE]

ADDRESS:

[MAILING]

[STREET, IF DIFFERENT THAN MAILING]

TELEPHONE:

[PRINT OR TYPE TELEPHONE NUMBER]

[PRINT OR TYPE FAX NUMBER]

STATE OF INCORPORATION: (IF APPLICABLE) _____

END OF SECTION 01 78 36

**SECTION 01 78 36
PROJECT RECORD DOCUMENTS**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
 - 2. Divisions 2 through 16 Sections for Specific requirements for Project Record Documents of the Work in those Sections.

1.03 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of copies: Submit one set of marked-up Record Prints.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.01 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue or black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a) Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b) Accurately record information in an understandable drawing technique.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- c) Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a) Dimensional changes to Drawings.
 - b) Revisions to details shown on Drawings.
 - c) Revisions to routing of piping and conduits.
 - d) Revisions to electrical circuitry.
 - e) Actual equipment locations.
 - f) Locations of concealed internal utilities.
 - g) Changes made by Change Order or Construction Change Directive.
 - h) Changes made following Architect's written orders.
 - i) Details not on the original Contract Drawings.
 - j) Field records for variable and concealed conditions.
 - k) Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

2.02 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.03 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data Submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.04 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.01 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01 78 36

**SECTION 07 52 16
MODIFIED ASPHALT BITUMINOUS ROOFING
ALTERNATE APPLICATION**

PART 1 - GENERAL

1.01 AREAS COVERED

- A. Refer to roof plans for areas to be included in the scope of work.

1.02 DEFINITIONS

ACM	Asbestos Containing Materials
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
EPDM	Ethylene Propylene Diene Monomer
EPS	Expanded Polystyrene
EVT	Equiviscous Temperatures
FM	Factory Mutual
IBC	International Building Code
KEE	Ketone Ethylene Ester
NDL	No Dollar Limit
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NRCA	National Roofing Contractors Association
OSHA	Occupational Safety & Health Administration
SBS	Styrene-Butadiene-Styrene
SDI	Steel Deck Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPRI	Single Ply Roofing Industry
UL	Underwriters Laboratories, Inc.

1.03 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 for Testing and Materials (ASTM)
- E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual
- F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual

G. American Society of Civil Engineers – ASCE 7

1.04 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.
3. Installer must be an experienced single firm specializing in the type of roofing repair and/or removal and replacement work required, employing only experienced workers for the class of work in which they are employed, having at least five (5) years successful experience on projects similar in size and scope and acceptable as applicators by the Project Manager.
4. Contractor must have successfully completed previous projects warranted by the manufacturer.

B. It shall remain each Bidder's responsibility to determine his current status with the manufacturer's certification plan.

1.05 MANUFACTURER QUALIFICATIONS

A. A qualified manufacturer is one that is UL listed and has FM approvals for a membrane roofing system similar to that used for this project for a minimum of fifteen (15) years.

1.06 CONTRACT DOCUMENT QUALITY ASSURANCE

A. 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 interpretation.

1.07 SUBMITTALS

A. Refer to Specification Section 01 33 00 for Submittal requirements

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.

1.08 SYSTEM DESCRIPTION –

A. **ALTERNATE SYSTEM:** Two-ply, Modified Bitumen Roofing System with factory applied "cool roof" coating; reinforced modified bitumen cap sheet applied by torch application over modified bitumen base ply torched to a mechanically fastened venting base sheet, with top surface coated with Energy Star compliant factory applied reflective coating.

1.09 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 B. Manufacturer's packaging and/or roll plastic is not acceptable for exterior storage.
2 Tarpaulin with grommets shall be minimum acceptable for exterior coverings. All materials
3 stored as above shall be a minimum of four inches (4") off the substrate, and the tarpaulin
4 tied off with rope.
5
6 C. Deliver materials requiring fire resistance classification to the job with labels attached and
7 packaged as required by labeling service.
8
9 D. Deliver materials in sufficient quantity to allow continuity of work.
10
11 E. Handle and store material and equipment in such a manner as to avoid damage. Liquid
12 products shall be delivered sealed, in original containers.
13
14 F. Handle rolled goods so as to prevent damage to edge or ends.
15
16 G. Select and operate material handling equipment so as not to damage existing construction
17 or applied roofing.
18
19 H. Moisture-sensitive products shall be maintained in dry storage areas and properly
20 covered. Provide continuous protection of materials against wetting and moisture
21 absorption. Store roofing and flashing materials on clean raised platforms with weather
22 protective covering when stored outdoors.
23
24 I. Store rolled goods on end.
25
26 J. Protect materials against damage by construction traffic.
27
28 K. The proper storage of materials is the sole responsibility of the contractor and any wet or
29 damaged roofing materials shall be discarded, removed from the project site, and replaced
30 prior to application.
31
32 L. Comply with fire and safety regulations, especially with materials which are extremely
33 flammable and/or toxic. Use safety precautions indicated on labels.
34
35 M. Products liable, such as emulsions, to degrade as a result of being frozen shall be
36 maintained above 40° F in heated storage.
37
38 N. No storage of materials shall be permitted on roof areas other than those materials that
39 are to be installed the same day. Any exception must be in written form.
40
41 O. The contractor is to erect a temporary chain link fence, minimum six feet (6') in height,
42 around work area stage and/or kettles. Fence is to be secured on a daily basis.
43 1.10 SITE CONDITIONS
44
45 A. Job Condition Requirements:
46 1. Coordinate the work of the contractor with the work to be performed by other trades,
47 to ensure proper sequencing of the entire work. The contractor is to schedule his
48 work so that adequate time is allowed for other trades to perform their work.
49 2. Apply roofing in dry weather.
50 3. Do not apply roofing when ambient temperature is below 45° F.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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 materials than can be reinstalled in any working day.
6. Load placed on the roof at any point shall not exceed the safe load for which the roof is designed.
7. 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 Project Manager.
8. The contractor is to be aware of the potential for roof leaks on the existing roof as a result of ruptured blisters and/or roof mat damage caused by the vacuum process, foot traffic, or material and equipment storage. The contractor is to take all necessary precautions to prevent damage to the existing roof. All damage to the existing roof that could result in roof leaks is to be repaired on a daily basis by the roofing contractor.
9. 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, follow the stricter document.
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 a fume recovery system, automatic thermostat control, and visible 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 40° F during applications of cleaner and waterproof coating and remain above 40° F for a minimum of four (4) hours following applications. Verify compatibility of cleaner with coatings, paints, primers and joint sealers specified. Advise Project Manager of any problems in this regard prior to commencing cleaning operations.
14. Temporary Sanitary Facilities:
 - a. The contractor shall furnish and maintain temporary sanitary facilities for employees use during this project, including temporary toilets, wash facilities, and drinking water fixtures.
 - b. Toilet units shall be self-contained, single occupant, of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
 - c. Facilities shall be installed where they will best service the project's needs, with Owner's/Owner's Representative's approval.
 - d. Contractor shall provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
 - e. All portable facilities shall comply with local laws, codes, and regulations.
 - f. Contractor shall be responsible to see that the units are removed in a timely manner after the completion of the project.

1 B. Protection of Work and Property:

- 2 1. Work: The contractor shall maintain adequate protection of all his work from
3 damage and shall protect the Owner's and adjacent property from injury or loss
4 arising from this contract. Contractor shall provide and maintain at all times any
5 OSHA required danger signs, guards, and/or obstructions necessary to protect the
6 public and his workmen from any dangers inherent with or created by the work in
7 progress. All federal, state, and city rules and requirements pertaining to safety and
8 all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as
9 required shall be fulfilled by the contractor as part of his proposal.
- 10 2. Property: Protect existing planting and landscaping as necessary or required to
11 provide and maintain clearance and access to the work of this contract. Examples of
12 two categories or degrees of protection are generally as follows: a) removal,
13 protection, preservation, or replacement and replanting of plant materials;
14 b) protection of plant materials in place, and replacement of any damage resulting
15 from the contractor's operations.
- 16 3. Finished roof areas shall be protected from damage by the contractor during
17 construction.
- 18 4. Twenty-four Hour Call: The contractor shall have personnel on call 24 hours per
19 day, seven (7) days per week for emergencies during the course of a job. The
20 Project Manager is to have the 24 hour numbers for the contact. Contractor must be
21 able to respond to any emergency call and have personnel on-site within two (2)
22 hours after contact. Numbers available to the Project Manager are to be mobile,
23 home and office numbers for:
24 a) Job Foreman
25 b) Job Superintendent
26 c) Owner or Company Officer
27

- 28 C. Damage to Work of Others: The contractor shall repair, refinish, and make good any
29 damage to the building or landscaping resulting from any of his operation. This shall
30 include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings,
31 floors, or any other finished work. Damage done to the building, equipment, or grounds
32 must be repaired at the successful contractor's expense holding the Owner harmless from
33 any other claims for property damage and/or personal injury.
34

- 35 D. Measurements: It will be the contractor's responsibility to obtain and/or verify any
36 necessary dimensions by visiting the job site, and the contractor shall be responsible for
37 the correctness of same. Any drawings supplied are for reference only.
38

39 E. Use of Premises:

- 40 1. The contractor is advised that the Owner will occupy the building at all times, and the
41 contractor must provide all safeguards required to protect personnel and to keep
42 noise levels as low as reasonably possible for each operation.
- 43 2. The contractor shall:
44 a) Coordinate work in such a manner as to not interfere with the normal operation of
45 the building.
46 b) Assume full responsibility for protection and safekeeping of products stored on
47 premises.
48 c) Agree to hold the Owner harmless in any and all liability of every nature and
49 description which may be suffered through bodily injuries, including death of any
50 persons by reason of negligence of the contractor, agents, employees, or
51 subcontractors.
52

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.

1.11 SAFETY GUIDELINES FOR TORCH APPLICATIONS

A. All Safety guidelines of the NRCA/MRCA CERTA *Safety Practices for Roofing Torch Use* shall be strictly adhered to. Some of these safety guidelines are listed below but are not all inclusive.

1. Pre-job Planning:

- a) Identify and protect plywood, oriented strand board (OSB), wood plank, wood fiberboard and other combustible building components as follows:
 - i. The job foreman or supervisor shall review daily with the Owner's Project Manager conditions that could present hazards during torching and address them.
 - ii. Address possible fire traps and hidden hazards.
- b) Have a minimum of two 4A60BC fire extinguishers available within ten feet (10') of all torch operations.
- c) All personnel on the roof shall be trained on how to use a fire extinguisher.
- d) Inspect all penetrations, such as exhaust vents, inside and outside. Lint, grease or other substances, if present, shall be cleaned prior to torching work.
- e) Have a working cell phone with a fully charged battery available for communicating with 911 or another emergency responder, with the local fire department number pre-programmed in the cell phone.
- f) Comply with all state and local ordinances where applicable.

2. Torch Safety:

- a) Only NRCA/MRCA CERTA certified torch applicators shall operate torches when an open flame will come in contact with any part of a roof.
- b) Protect materials that may burn when in contact with an open flame. Never torch directly to any combustible material.
- c) Never torch directly in an area where you cannot see the path of the open flame (including – but not limited to – flashings, corners, curbs, voids, expansion joints and small roof penetrations). Use alternative application methods that are acceptable to the membrane manufacturer in these areas.
- d) A lit torch shall only be placed on the roof surface using a functional torch stand.
- e) A lit torch shall never be left unattended.

3. End-of-Day Fire Watch:

- a) A minimum two-hour fire watch, as described in the NRCA/MRCA CERTA training program, shall be conducted by a properly trained and dedicated individual: it shall include checking the roof's underside for smoldering (whenever possible), as well as the top side.
- b) The designated person to conduct a fire watch must be competent and have authority to take action in the event a fire is detected.

4. Fire Extinguishers:

- a) All fire extinguishers shall be fully charged.
- b) Each torch operator should have a fire extinguisher within ten feet (10') of torching work.
- c) A minimum of two fire extinguishers should be readily available within ten feet (10') of all torching activities.
- d) Fire extinguishers should be placed no closer than ten feet (10') from any propane cylinder.
- e) A fire extinguisher should be placed near the access to the attic areas.
- f) All fire extinguishers must have a valid, up-to-date inspection tag by an authorized service provider affixed.
- g) All fire extinguishers must have a plastic seal band in place through the release pin. This ensures the pin has not been previously removed and the extinguisher has not been discharged.
- h) If a fire extinguisher is discharged for any reason --- even partially discharged --- it should be removed from the job site until it can be serviced and recharged by an approved provider.
- i) Fire extinguishers and propane cylinders shall be stored according to safety guidelines in a secured area at the end of each workday.

1.12 SEQUENCING AND SCHEDULING

- A. Coordinate roofing schedule with work of other trades.
- B. Plan lay up of roofing membrane with respect to deck slope. Avoid situations where excessive drainage could pass into completed roofing.
- C. Maintain communication with roofing manufacturer's representative to inform of progress and to schedule periodic inspections.
- D. All penetrations shall be made in roof prior to beginning with roof installation.

1.13 PERFORMANCE REQUIREMENTS

- A. Roofing System: Shall prevent water migration into roof assembly or building interior through the roof membrane and/or membrane base flashing.

1.14 QUALITY ASSURANCE

- A. Work of this Section to conform to these specifications, and to the roofing material manufacturer's application instructions. In the event of conflicts between the two, the more stringent requirement shall be observed.
- B. Maintain one copy of each document on site.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 C. Factory Technical Representative: Roofing Contractor is to arrange and schedule the
2 manufacturer's technical representative to be on site the first day of the installation of
3 manufacturer's roofing system. The manufacturer's technical representative shall inspect
4 the work of the contractor at least one time each week during the installation of the roofing
5 system. The manufacturer's technical representative shall perform with the owner's
6 representative and the roofing contractor a final inspection of the roofing system. At the
7 completion of the final inspection, provide to the roofing contractor a list of punch list items
8 (if any) to be correct before technical acceptance of the roofing project and prior to
9 issuance of manufacturer's Twenty (20) Year Full System Warranty. Field reports shall be
10 provided after each inspection within five (5) days of site visit.
11
- 12 D. Pullout Tests: Conduct pullout test on deck using appropriate fastener prior to roof system
13 installation. Submit pullout results for manufacturer's review to determine specific
14 fastening pattern for this project, minimum uplift requirements shall conform to current
15 ASCE 7 criteria.
16

17 1.15 QUALIFICATIONS
18

- 19 A. Manufacturer: Company specializing in manufacture of the products specified, with
20 five (5) years documented experience in the uninterrupted, and unmodified manufacture of
21 the roofing system and component elements of the roofing system specified herein.
22
- 23 B. Applicator: Company specializing in the work of this Section, having a minimum of five (5)
24 years documented experience applying modified bitumen roofing systems, and approved
25 by the Manufacturer for not less than three (3) years to install the specified roof system so
26 as to achieve a twenty (20) year no dollar limit warranty.
27

28 1.16 REGULATORY REQUIREMENTS
29

- 30 A. Conform to all applicable local codes for roof assembly fire hazard requirements.
31
- 32 B. Provide certification of inspection confirming approval of design and installation by
33 authority having jurisdiction.
34
- 35 C. Fire Hazard Classifications: UL Class A.
36

37 1.17 PRE-INSTALLATION CONFERENCE
38

- 39 A. Convene a preinstallation conference two weeks prior to commencing the Work.
40
- 41 B. Require attendance of parties directly affecting the Work of this Section.
42
- 43 C. Review condition of roof deck and installation, installation procedures and coordination
44 with related work.
45

46 1.18 ENVIRONMENT REQUIREMENTS
47

- 48 A. Do not apply roofing during inclement weather.
49
- 50 B. Do not apply roofing membrane to damp or frozen deck or substrate.
51

1.19 WARRANTY

- A. Roofing - Manufacturer: Project shall be installed in such a manner that the roofing material manufacturer will furnish a written twenty (20) year NDL type warranty from the date of substantial completion of the completed project. Manufacturer issuing warranty shall provide historical data supporting hail resistance.
- B. Roofing - Contractor: The contractor, jointly with any subcontractors employed by him, shall guarantee the work required and performed under this contract will be free from defects in workmanship and materials, and that the building will be and remain waterproof for a five (5) year warranty period, after the Owner accepts the work as substantially complete. The warranty shall be in approved notarized written form, to obligate the contractor and his subcontractors, if any, to make good the requirements of the warranty.
- C. 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 (if applicable). Repair of the system, including materials and labor, shall be done at no cost to the Owner.
- D. Provide twenty (20) year Manufacturer's No-Dollar-Limit (NDL) warranty on the above-deck roofing system. Warranty to cover costs of material and labor to replace roofing material which fails to resist the penetration of water due to failure of either material or workmanship, with no penal sum.
- E. Manufacturer's warranty shall cover above deck roofing components against wind uplift resulting from wind pressures based on the requirements of ASCE 7-10.

PART 2 PRODUCTS

2.01 GENERAL

- A. Samples of all materials used on the project, which are not supplied by the membrane manufacturer, shall be submitted to the membrane manufacturer for written approval prior to work starting.
- B. All materials used on the project shall be asbestos free

2.02 MANUFACTURERS – SHEET AND BITUMINOUS MATERIALS

- A. GAF
- B. Soprema
- C. Johns Manville
- C. Or prior approved equal by Project Manager

2.03 FINISH MEMBRANE:

- 1. Cap Ply **Cool Roof** Rated:
 - a. Membrane Top Ply: High Reflectivity White Surface Cap Sheet:
 - 1) Description: Roofing membrane shall have a fiberglass mat reinforcement and thermofusible elastomeric asphalt. Top surface to have White High-Reflective surface. Application is for hot asphalt.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

b. Physical Properties:

- 1) Approximate Weight: 104 lbs/sq
- 2) Approximate thickness: 157 mils
- 3) Total System thickness: 261 mils

c. White reflective surface certifications: Shall be listed by Energy Star and CRRRC:

- 1) Initial Solar Reflectance Value: .83
- 2) Weathered Reflectance Value: .80
- 3) Initial Emissivity Value: .91
- 4) Weathered Emissivity Value: .88
- 5) Solar Reflectance Index Value: 104

2.04 BASE PLY MEMBRANE:

1. Fiberglass reinforced modified bitumen sheet.

- a. Description: Base ply membrane shall have a fiberglass reinforcement and thermofusible elastomeric asphalt. Both sides shall have a high-brush sanded surface. This membrane is to be applied by torch method.

b. Physical Properties:

- 1) Approximate roll weight: 90 pounds
- 2) Approximate thickness: 91 mils

B. Base Flashing Membranes:

1. Base Ply Membrane– Fiberglass reinforced modified bitumen sheet.

- a. Description: Base ply membrane shall have a fiberglass reinforcement and thermofusible elastomeric asphalt. Both sides shall have a high-brush sanded surface. This application is to be applied by torch application.

b. Physical Properties:

- 1) Approximate roll weight: 90 pounds
- 2) Approximate thickness: 91 mils

2. Finish Membrane: Polyester reinforced modified bitumen flashing sheet.

- a. Description: Flashing membrane shall have a non-woven polyester reinforcement and thermofusible elastomeric asphalt. Both sides shall have a high-brush sanded surface. Top surface to have White High-Reflective surface. This application is to be applied by torch method only.

b. Physical Properties:

- 1) Approximate roll weight: 106 lbs.
- 2) Approximately thickness: 157 mils

c. White reflective surface certifications: Shall be listed by Energy Star and CRRRC:

- 1) Initial Solar Reflectance Value: .83
- 2) Weathered Reflectance Value: .80
- 3) Initial Emissivity Value: .91
- 4) Weathered Emissivity Value: .88
- 5) Solar Reflectance Index Value: 104

2.05 BASE SHEET FOR USE OVER LIGHT-WEIGHT CONCRETE ROOF DECK

- A. Shall be Underwriters Laboratory approved.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 B. Shall be heavy duty, asphalt-coated fiber glass venting base sheet, with mineral surfacing
2 on one side, ASTM D4897, Type II.
3
4 C. Shall be asphalt-impregnated and coated glass-fiber venting base sheet, with mineral
5 surfacing on the top side and factory-applied ceramic granules on the underside,
6 ASTM D4897, Type II.
7
8 D. Shall be premium grade, moisture resistant and flame retardant inorganic venting base
9 sheet, asphalt coated on both sides and surfaced on one side with mineral granules, with
10 a series of closely spaced 1/2" perforations spaced on 4" centers, ASTM D4897, Type II
11 and ASTM D3672, Type II.
12

13 2.06 ASPHALT ROOF PRIMER
14

- 15 A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces, as manufactured by
16 Gardner-Gibson, Inc. / GAF, or approved equal.

17		
18	ASTM	D 41
19	Flash Point	105° F
20	Viscosity at 80° F (ASTM D 217)	50-60 K.U.
21	Weight per gallon	7.4 pounds
22	Drying time (to touch)	Min. 4 hours
23		

24 2.07 ASPHALT PLASTIC ROOF CEMENT
25

- 26 A. Trowel-applied mastic used on flanges of gravel stops, stacks, vents, and similar
27 applications, as manufactured by Gardner-Gibson, Inc. / Johns-Manville, or approved equal.

28		
29	ASTM	D 4586
30	Flash Point	105° F
31	Weight per gallon (approximate)	11 lbs.
32	Viscosity @ 80° F (ASTM D 217)	270-330
33	% Non-Volatile (Fed. Test Method 141)	70% Min.
34	% Specially Processed Bitumen	30% Min.
35	% Total Solids, by Volume	75% Min.
36	Dry film thickness of 1 gal./15 sq. ft.	85 Mils
37	Drying time	2 to 3 days
38	Service Temperature, Extended Exposure	-20° to +150° F
39	Resistance to Oils & Solvents	Poor
40	Resistance to Sunlight	Good
41	Resistance to Chemicals	Good
42	Effects of Weathering	Slight chalking
43	Water Resistance	
44	Under Good Drainage Conditions	Excellent
45	Under Continuous Submersion	Fair

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

2.08 INSULATION

- A. The existing lightweight insulated concrete roof deck is and appears to have R-25 built into the system, no additional polyisocyanurate insulation is required.

2.09 SUBSTRATE BOARDS

- A. All substrate boards shall be in compliance with Section 07 22 16 Roof Board Insulation.

2.10 CANT STRIP

- A. Structural: Shall be wood where used for structural purposes meeting NRCA, FM Global and Underwriters Laboratory guidelines.

- B. Non-structural: Shall be wood fiber where used for non-structural purposes, conforming to ASTM C208 and C209.

2.11 ROUGH LUMBER

- A. Refer to Specification Section 06 10 53 Miscellaneous Carpentry for further information

- B. Vertical Wall Shimming Material: Shall be exterior grade plywood unless otherwise accepted by Project Manager. Thickness shall be as required for attachment or to make material flashing flush or level with offsets and/or transitions, minimum three-fourths inch (3/4"). Proper selection of material is required to achieve UL guidelines.

2.12 SEALANTS

- A. One-part Urethane Sealant: Sealant for use at coping joints, reglet joints, etc., shall be a one-component, high performance, non-priming, non-sag, gun grade elastomeric polyurethane sealant designed for use in active exterior joints, ASTM C 920, shall meet the following physical and performance properties, SONOLASTIC® NP 1™ as manufactured by BASF Construction Chemicals, LLC, or approved equal.

<u>Properties</u>	<u>Results</u>	<u>Test Methods</u>
Movement capability, %	±35	ASTM C719
Tensile strength, psi (MPa)	350 (2.4)	ASTM D412
Tear strength, pli	50	ASTM D1004
Ultimate elongation at break, %	800	ASTM D412
Rheological, at 120° F (49° C)	No sag	ASTM C639
(sag in vertical displacement)		
Extrudability, 3 seconds	Passes	ASTM C603
Hardness, Shore A		ASTM C661
At standard conditions	25 – 30	
After heat aging (max Shore A: 50)	25	
Weight loss, after heat aging	3%	ASTM C792
Cracking and chalking, after heat aging	None	ASTM C792
Tack-free time, hrs, (maximum 72 hrs)	Passes	ASTM C679
Stain and color change	Passes (no visible stain)	ASTM C510
Bond durability,* on glass, aluminum, and concrete ±35% movement	Passes	ASTM C719
Adhesion* in peel, pli (min. 5 pli)	30	ASTM C794

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

Adhesion* in peel after UV radiation	Passes	ASTM C794
through glass (min. 5 pli)		
Artificial weathering, Xenon arc, 250 hours	Passes	ASTM C793
Artificial weathering, Xenon arc, 3,000 hours		No surface cracking
	ASTM G26	
Water immersion, 122° F (50° C)	Passes 10 weeks with	ASTM C1247
	movement cycling	
*Primed for water immersion dictated by ASTM C920.		

2.13 FASTENERS

- A. All substrate boards shall be in compliance with Section 07 22 16 Roof Board Insulation.
- B. Fasteners and fastening plates or bars shall be as recommended by the fastener manufacturer for the specific application.

2.14 LIQUID FLASHING SYSTEM

- A. Liquid flashing system to be manufacturers recommended system comprising a liquid compound and sheet scrim fabric or equivalent.

2.15 PIPE SUPPORTS

- A. Refer to Specification Section 07 72 00 Roof Accessories for further information.
- B. Pipe support system shall be a prefabricated, engineered support system designed specifically for use on roofing without adhesive, roof penetrations, flashings, or damage to roofing system. Supports shall be as recommended by manufacturer as suitable for size and type of conduit or pipe being supported or approved equal.

2.16 ROOF WALKWAY PADS

- A. Walkway Pads: Manufacturer's standard walkway pads consisting of modified asphalt, reinforcements and fillers with a ceramic granule surface on both sides. Thickness shall be 1/4" min.

2.17 MECHANICAL FASTENERS FOR FLEXIBLE FLASHING

- A. Wood: Galvanized steel, annular ring roofing nails with integral one inch (1") cap, roofing nail by Simplex.

2.18 ROOF PLAQUE

- A. Contractor shall provide a sixteen inch by sixteen inch (16" x 16") metal plaque on the underside of each of the roof hatches that states the following:
 - 1. Architect name, phone number. As project dictates
 - 2. School district phone number.
 - 3. School district emergency phone number,
 - 4. Contractor name, phone number.
 - 5. Subcontractor name, phone number.
 - 6. Roof Consultant, name, phone number.
 - 7. Roof system, warranty information, and

8. Roof Manufacturer, phone number.

2.19 ROOF HATCH

A. Refer to Specification Section 07 72 00 Roof Accessories for further information.

B. Existing roof hatch to be cleaned, primed and coated with a high-quality aluminized paint.

2.20 TERMINATION/PRESSURE BARS

A. Aluminum strip shall be extruded channel bar with a mill finish, width one inch (1"), thickness 0.100" \pm .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.

2.21 SELF-ADHERING UNDERLAYMENT FOR TEMPORARY WATERPROOFING

A. A premium heavyweight, minimum 60 mil, self-adhering high temperature 260-degree min, underlayment, to use as a temporary waterproofing barrier.

2.22 ELASTOMERIC SEAM COATING

A. A one –part acrylic elastomeric seam coating per manufacturer's recommendations.

2.23 JOINT PRIMER/SEALER

A. Provide type of joint primer/sealer recommended by sealant manufacturer for joint surfaces to be primed or sealed.

2.24 BOND BREAKER TAPE

A. Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape where applicable.

2.25 SEALANT BACKER ROD

A. Provide compressible rod stock 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.

2.26 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.

2.27 PRECAUTIONS

- A. Some of the indicated materials are extremely flammable and/or toxic. Use precautions indicated on can and carton labels.

2.28 OVERNIGHT SEAL

- A. Hot applied asphalt bitumen shall be provided for the purpose of night sealing the roof system.
- B. Apply a six inch (6") wide mopping of asphalt along the exposed edges of the white fleece backed base flashings as required to prevent wicking into the membrane.

2.29 MISCELLANEOUS MATERIALS

- A. Other materials shall be as specified, or of the best grade for the proposed use, as recommended by the manufacturer of said product.

PART 3 EXECUTION

3.01 REFERENCE

- A. In the instance of a conflict between these specifications and those of the manufacturer and/or current NRCA, Underwriters Laboratory and IBC guidelines, the more stringent specifications (better quality or greater quantity of work) shall take precedence.
- B. The manufacturer's Technical Specifications and current NRCA, Underwriters Laboratory and IBC guidelines shall be considered a part of this specification and shall be referred to for general application procedures and recommendations.
- C. Application of materials shall be in strict accordance with the manufacturer's recommendations and current NRCA, Underwriters Laboratory and IBC guidelines, except where more stringent requirements (better quality or greater quantity of work) are shown or specified.
- D. General Installation:
1. Comply with governing local, state, and federal regulations, safety standards, and codes. When conflict exists, the more restrictive document shall govern.
 2. Protect adjacent areas with tarpaulin or other durable materials.
 3. Contractor shall prevent overspray and be responsible for parking lot areas and/or adjoining areas not part of this contract.
 4. 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.
 5. 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 galvanized sheet steel that is to receive bitumen, or come in contact with bitumen or adhesive, shall be scored, scuffed or abraded before receiving primer application.
 6. Use cleaning materials or primers necessary to render an acceptable surface/substrate.
 7. All surfaces/substrates shall be clean and dry prior to application of materials.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

8. Prior to application of felts and or 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.
 9. Prior to application of flashing membranes, substrate shall be clean and free of any previously installed roofing materials. Contractor shall ensure that all components of substrate be structurally sound before application of flashing materials.
 10. Bitumen kettle shall have a fume recovery system, and visible thermometer to provide positive monitoring of the bitumen temperature when it is heated in accordance with manufacturer's instructions.
 11. Ambient temperature shall be 40° F and rising.
 12. The underlayment plies and field membrane are to be laid in the direction of maximum roof slope, working from bottom of slope toward ridge.
 13. Wrinkles, buckles, kinks, and fish mouths are not acceptable when laying membranes.
 14. Dry voids of membrane on membrane are not acceptable.
 15. All surfaces that are to receive the self-adhered membranes shall be primed with a fast drying asphaltic primer.
 16. Application of roofing shall immediately follow the application of any insulation as a continuous operation. Under no circumstance is insulation to be left exposed at the end of the day. Insulation left exposed overnight will be removed and replaced at no cost to the Owner.
 17. Masonry and metal surfaces to receive roofing shall be primed with a uniform coating of approved asphalt primer.
 18. Unless otherwise noted, all layers of roofing shall be installed perpendicular to the slope of the deck; completely free of wrinkles, creases or fishmouths. Membrane application by the "mop and flop" technique will not be permitted.
 19. Asphalt kettles or tankers employed under this Contract shall be equipped with functioning, accurately calibrated, readable thermometers.
 20. Asphalt shall be applied in uniform mopping free of voids or holidays, at a rate recommended by the roofing manufacturer and not more than 25° F above the asphalt's listed Equiviscous temperature (EVT).
- F. Do not apply roofing materials unless asphalt application temperatures can be maintained within the equiviscous temperature (EVT) range; or when water in any form (i.e., rain, dew, ice, frost, snow, etc.) is present on the deck. Do not heat asphalt above finished blowing temperature, flash point or 525 degrees Fahrenheit.
1. The equiviscous temperature (EVT) is defined by the NRCA as the temperature at which a bitumen attains the proper viscosity for built-up membrane application.
 2. The EVT range is defined by the NRCA as the recommended bitumen application temperature range. The range is approximately 25 degrees Fahrenheit above or below the EVT. The EVT range is measured in the mop cart or mechanical spreader just prior to the application of bitumen to the substrate.
 3. The proper viscosity for mop application is 125 centipoise. The proper viscosity for mechanical spreader application is 75 centipoise. If both mop and mechanical application is used, the proper viscosity for both is 75 centipoise.
- G. Consider roof system manufacturer's technical specifications part of this specification and use as reference for specific application procedures and recommendations

1
2 3.02 EXAMINATION
3

- 4 A. Examine roof deck and related surfaces and verify that there are not conditions such as
5 inadequate anchorage, foreign materials, moisture, ridges, or other conditions which
6 would prevent satisfactory installation of roofing system.
7
8 B. Correct conditions requiring correction or completion prior to installation of roofing system.
9 Notify Owner's representative (Owner's representative, Contractor Officer) of
10 unacceptable conditions.
11
12 C. Do not proceed until defects are corrected.
13
14 D. Verify location of interior ducts, electrical lines, piping, conduit, an similar obstructions.
15 Perform work in manner to avoid contact with above mentioned items.
16
17 E. Verify debris has been removed.
18
19 F. Start of work under this Part Three constitutes acceptance of deck substrate and site
20 conditions by roofing contractor
21

22 3.03 SUBSTRATE PREPARATION
23

- 24 A. Tear-off: Remove all existing roof assembly down to the roof deck or original substrate.
25 Substrate shall be smooth, free of debris, sharp edges, and other surface irregularities
26 prior to starting roofing application. Substrate repair shall be performed as required to
27 minimum of NRCA standards.
28
29 B. Protect all building surfaces against damage from roofing work.
30
31 C. Prevent debris and bitumen from entering the building, any drains, downspouts, plenum
32 spaces and/or roof openings.
33
34 D. Clean surfaces of roof deck and maintain free of dirt, debris and any deleterious material
35 during roofing operations.
36
37 E. Above-Deck Fills:
38 1. Roofing substrate must be acceptable to the manufacturer prior to application of roof
39 materials.
40 2. Nailable fills shall receive a specified base sheet properly fastened with suitable
41 fasteners.
42 3. Fill shall be patched with quick setting cement as required to provide a smooth
43 substrate for installation.
44

45 3.04 CATEGORY II (NON-FRIABLE) ASBESTOS CONTAINING MATERIALS (ACM) REMOVAL
46

- 47 A. Owner and Contractor agree to exonerate, indemnify, defend, and hold harmless the
48 roofing material manufacturer from and against all claims, demands, lawsuits, damages,
49 expenses and losses incurred by Contractor's removal of asbestos-containing materials
50 from Owner's building and work site. Contractor must conduct its operations according to
51 applicable requirements including but not limited to those established by:
52 1. Occupation Safety and Health Administration (OSHA).

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

2. Environmental Protection Agency (EPA).
3. Department of Transportation (DOT).
4. State or Local Air Pollution Control Authorities/Agencies.
5. State or Local Solid Waste or Hazardous Waste Authorities/Agencies.
6. State or Local Health Department(s).
7. State or Local Building Code Authorities.
8. Other federal, state or local agencies or authorities.

B. Contractor or Owner shall perform appropriate inspections, surveys and file timely notifications to proper authorities prior to starting roof renovation or demolition activities. Inspectors, project planners, project managers, contractors and workers involved in the roof project shall have appropriate training, licenses and registrations. Contractor and Owner shall be responsible for determining and implementing regulatory compliance activities, including but not limited to work practices, engineering controls, personal protection, air monitoring, testing, hazard communication, material handling, record retention, and arranging for waste disposal/handling.

C. Contractor must file a Uniform Hazardous Waste Manifest from proper landfill site for each load of asbestos containing material removed. Copies must be sent to Owner and material manufacturer/specifier. Transportation of waste shall be in accordance with applicable Department of Transportation (DOT) requirements.

3.05 ROUGH CARPENTRY

- A. All rough carpentry shall be in compliance with Section 06 10 53 Miscellaneous Carpentry.
- B. Nailers shall be installed according to NRCA, Underwriters Laboratory, and IBC guidelines.
- C. Wooden nailers shall be installed at Metal edges, drip edges, expansion joints, and on outside perimeter of building.
- D. Metal Edge and drip edge nailers shall be the same height as the new insulation being installed where required.
- E. 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.

3.06 CANTS

- A. 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.
- B. Cants shall provide a four (4) inch rise above the roof's surface.
- C. 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.
- D. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.
- E. 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.

1
2 3.07 MECHANICALLY FASTENED BASE SHEET OVER SUBSTRATE
3

- 4 A. Substrate shall be covered with a specified base sheet mechanically fastened as follows:
5 1. Securement shall conform to the ASCE 7 criteria for wind uplift as dictated by wind
6 zone applicable to location of project. Fasteners and fastening patterns shall be
7 determined by building height, location and geographical area of the United States.
8 It is the contractor's responsibility to consult current codes, publications, literature,
9 and bulletins of IBC and the fastener manufacturer that are in effect at the time of
10 this project.
11

12 3.08 INSULATION
13

- 14 A. The existing lightweight insulated concrete roof deck is and appears to have R-25 built
15 into the system, no additional polyisocyanurate insulation is required.
16

17 3.09 APPLICATION OF UNDERLAYMENT PLY SHEETS
18

- 19 A. Deck shall be covered with one (1) layer of specified vented base sheet attached per
20 manufacturer requirements to meet wind up lift and ASCE-7-10.
21

22 3.10 APPLICATION BASE MEMBRANE
23

- 24 A. Apply base membrane sheet over prepared substrate torched down, providing four inch
25 (4") side laps and six inch (6") end laps. Stagger end laps of adjacent sheets not less than
26 thirty-six inches (36").
27
28 B. Apply sufficient pressure to the top side of the sheet to ensure that the base ply is
29 adhered.
30

31 3.11 APPLICATION FINISH MEMBRANE
32

- 33 A. Beginning at low point of roof, apply approved torch application cap sheet torched down
34 and adhering to torching procedures. Provide four-inch (4") side laps and six inch (6") end
35 laps. Stagger end laps thirty-six inches (36") from adjacent rows.
36
37 B. All layers of roofing shall be installed free of wrinkles, creases and fishmouths. If wrinkles,
38 creases and fishmouths are present the contractor is to cut out and apply a lap to lap
39 repair patch. If a fishmouth is formed during installation the contractor is to cut the ply and
40 start over to prevent more from occurring.
41
42 C. Prohibit foot and cart traffic from newly applied felts. Do not "walk-in" plies. If foot traffic
43 and tracks from cart traffic is seen the contractor is to install new membrane where
44 deficiencies are occurring.
45
46 D. The asphalt must be torched down so as to extend beyond both edges of the sheet. The
47 amount of asphalt should be just sufficient for excess asphalt to squeeze out along the
48 edges.
49
50 F. In addition to the standard application procedures as outlined, the contractor must be
51 familiarized and adhere to the manufacturer's requirements for proper installation
52 procedures for the cool roof white cap sheet.

- 1
2 G. Care must be taken to ensure good alignment of the first roll. A 45° cut shall be made on
3 the selvage edge of underlying membrane prior to application to ensure a good seal
4 between the membranes.
5

6 **3.12 FLASHING APPLICATION**
7

- 8 A. Flash all penetrations, metal edge systems, curbs as shown on details and approved shop
9 drawings with white Elvaloy® flashing membrane.
10 1. Field fabricate flashings for vent pipes, vent stacks, or other multi-angled roof
11 projections/penetrations.
12 2. Mechanically fasten flashing at terminations according to approved details.
13 3. Fastening membrane flashing through metal counterflashing without the use of a
14 termination bar is not acceptable.
15
16 B. Any lumber or shimming required for attachment or to make material flashing flush or level
17 with offsets and/or transitions shall be incorporated in the flashing specifications.
18
19 C. Flashing shall be placed at all vertical junctures with the roof, and at all penetrations. It will
20 consist of the approved base flashing sheet applied over one or more base ply sheets.
21
22 D. Base membrane sheet will be torched down and providing three inch (3") side laps.
23 Secure top edge with approved fasteners at six inches (6") on center. Sheet to extend
24 four inches (4") beyond the toe of the cant onto the horizontal surface of the membrane;
25 and extend not less than three inches (3") above the top of the cant onto the vertical
26 wall/curb surface. The top leading edge shall be secured with a continuous termination
27 bar, fastened at 8" o.c., the termination bar shall be sealed with three course and mastic.
28
29 E. Flashing plies shall be cut from the end of the roll and applied vertically always working to
30 a selvage edge.
31
32 F. The exposed flashing membrane will be mopped into place providing three inches (3")
33 side laps. Top edge to be secured with approved fasteners at six inches (6") on center.
34 Side laps are not to coincide with side laps of reinforcing ply sheet.
35
36 G. Prime surface of membrane sheet to receive flashing.
37
38 H. Extend flashing sheet four inches (4") beyond toe of cant onto horizontal field of the roof,
39 and extend onto vertical face of wall/curb not less than eight inches (8") above finished
40 roof surface. Secure top edge termination bar and three course mastic application.
41 Termination bar to be fastened with approved fasteners at six inches (6") on center.
42 1. At concrete or masonry surfaces, secure top edge of flashing utilizing a continuous
43 metal termination bar.
44 2. Thoroughly seal all voids in the corners and seams.
45 3. Application shall provide a smooth surface, free of air pockets, wrinkles, fishmouths or
46 tears.
47

48 **3.13 CANTS**
49

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

- 1 B.
2 C. Cants shall provide a four (4) inch rise above the roof's surface. (Vertical, not diagonal)
3
4 D. Toe of cant shall be level with the surface to receive new roof membrane and in all cases
5 anchored according to NRCA, Underwriters Laboratory, and IBC guidelines.
6
7 E. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.
8
9 F. If a wood cant is used where insulation exists, cant shall be toe nailed into treated wood
10 nailer under cant the same height as insulation.
11

12 **3.14 PROJECTION FLASHINGS**

- 13
14 A. Plumbing Vents: Soil vent stack pipes shall receive new fluid-applied and reinforced
15 flashing membranes and be installed as recommended by the roof membrane
16 manufacturer.
17
18 B. Square Projections: Cut a slit in the membrane to correspond with the position of the
19 projection, and lay the membrane in hot asphalt. Apply another layer of membrane in
20 exactly the same fashion, but from the opposite direction. For metal flange-type
21 projections, after doing above, strip in with six inch (6") strips of membrane.
22
23 C. Round Projections: Cut membrane square and eighteen inches (18") from perimeter of
24 projection. Slit square membrane with an "X" of proper size to ensure a close fit and
25 positive seal. Place over projection, and adhere to clean membrane already on the roof.
26 Cut a six inch (6") piece of membrane to apply as a collar, and secure with an all stainless
27 steel clamp.
28

29 **3.15 CURB FLASHINGS**

- 30
31 A. The flashing substrate shall be free of any dirt and loose material.
32
33 B. The underlayment ply or plies and the coal-tar elastomeric membrane (CTEM) shall be
34 brought to two inches (2") past the top of the cant strip and adhered.
35
36 C. Starting on the roof at least six inches (6") from the roofside edge of the cant strip, adhere
37 one (1) ply of smooth sanded modified base membrane extending over the cant and up
38 the vertical a minimum of eight inches (8"). Each lap of the membrane shall be a minimum
39 of three inches (3").
40
41 D. Over the smooth sanded modified base membrane starting on the roof at least eight
42 inches (8") from the roofside edge of the cant strip, adhere the finished membrane
43 extending over the cant and up the vertical a minimum of eight inches (8"). Each lap of
44 the finished membrane shall be a minimum of three inches (3"), and shall not coincide with
45 the laps of the underlayment sheet.
46
47 E. Fasten the top edge of the flashings on six inch (6") centers using approved termination
48 bar and fasteners. Cover termination bar with 3 course and mastic to seal leading edge of
49 the finished membrane watertight.
50
51 F. An NRCA-approved metal counterflashing shall extend down over the flashing a minimum
52 of four inches (4").

1
2
3 3.16 PIPING/CONDUIT
4

- 5 A. Refer to specification section 07 72 00 Roof Accessories for further information
6
7 B. Piping/conduit shall be raised to NRCA recommended heights, and new supports
8 furnished. Permanent supports shall be installed upon pads approved by membrane
9 manufacturer. Coordinate work with Project Manager.
10
11 C. All gas lines, piping, and conduits shall be coated with industrial grade yellow paint
12

13 3.17 MEMBRANE PROTECTION
14

- 15 A. Walk Way Pads: Install manufacturer's walk way pads continuously on each side of each
16 air-handling/mechanical unit on the roof in accordance with the manufacturer's
17 recommended procedures.
18
19 B. Where equipment pads, wood sleepers, or walkway slabs are to be installed over the roofing
20 membrane, an additional layer of the roofing membrane shall be installed between the
21 roofing membrane and the pad, sleeper, or slab. Due caution shall be exercised to prevent
22 roofing membrane damage during placement. Where required, membrane shall be welded
23 to field membrane to prevent slippage.
24

25 3.18 ROOF PLAQUE
26

- 27 A. Metal plaque shall be installed on the underside of each roof hatch or on the inside of the
28 maintenance room door. Location of plaque to be determined by Project Manager.
29
30 B. Plaque shall be fastened with stainless steel screws to the wall surface as necessary at
31 the base of the internal roof hatch ladder
32

33 3.19 ROOF HATCH
34

- 35 A. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean
36 and lubricate joints and hardware.
37 B. Provide crickets on the high side of hatch curb.
38
39

40 3.20 ELASTOMERIC SEAM COATING
41

- 42 A. Cover bleed out blocking with elastomeric seam coating approved by manufacturer.
43 Coating shall be applied using a medium nap roller.
44
45 B. Temperatures at time of application must be 50 deg. F and rising during time of
46 application. Apply per manufacturer's recommendations.
47

48 3.21 OVERNIGHT SEAL
49

- 50 A. Provide temporary weather protection during interval between demolition and removal of
51 existing construction on exterior surfaces and installation of new construction to ensure
52 that no water leakage or damage occurs to structure or interior areas of existing building.

- B. Installation shall be performed according to accepted roofing practice as outlined in the NRCA Roofing Manual.

3.22 FIELD QUALITY CONTROL

- A. Owner reserves the right to have finished Work inspected using infrared thermography or other appropriate, non-destructive means to establish satisfactory conditions of completed Work.
- B. Correct identified defects or irregularities. Cut out and repair membrane defects before end of each day.

3.23 MANUFACTURER'S FIELD SERVICES

- A. Provide manufacturer's field services as required to qualify for specified warranty.
- B. Roofing materials manufacturer's representative shall visit the site and observe the progress of the Work at a rate of not less than one time per week.
1. Site visits shall be followed up by a written report of findings which is to be transmitted to the Owner's Representative within five (5) days of the site visit.

3.24 CLEANING

- A. Remove bituminous markings from finished surfaces.
- B. In areas where finished surfaces are marred, or soiled by Work of this Section, consult manufacturer of soiled surface for cleaning advice and conform to their written instructions.
- C. Repair or replace defaced or disfigured finishes caused by Work of this Section.
- D. Roof surface shall be completely cleaned prior to final building move-in. All discharge water to be dealt with in accordance with local EPA requirements.

3.25 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provision of application Section.
- B. Where traffic must continue over finished roof installation, protect surfaces with minimum one-half inch (1/2") wood fiberboard insulation, under five-eighth inch (5/8") thick plywood protective walkways ballasted in place with sandbags or the like.
- C. At all parapet and metal coping cap conditions, provide additional layer of self-adhered underlayment for temporary protection over all parapet and coping caps conditions once roofing has been completed and prior to installation of wood nailers and metal coping cap. Self-adhered underlayment is to cover cavity conditions from roof side of parapet framing to outside of exterior finish to protect cavity from moisture prior to completing parapet cap framing.

END OF SECTION 07 52 16

**SECTION 07 54 19
MULTI-PLY PVC ROOF SYSTEM
PRIMARY SYSTEM**

PART 1 - GENERAL

1.01 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.

1.02 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.

1.03 MANUFACTURER QUALIFICATIONS

- A. A qualified manufacturer that has been UL Listed and has FM Approvals for membrane roofing system similar to that used in this project for a minimum of fifteen (15) years.
- B. The roofing membrane manufacturer is defined as a company which makes the primary roofing membrane and flashing membrane in its own factories from rawer states of material. No "Private Label" roofing membrane or flashing membrane material (in which one company's name goes on a product manufactured by others) is acceptable for this project.
- C. Testing Laboratory Services: Test results shall meet or exceed established standards.
- D. Underwriters Laboratory (Roofing Covering): Class A fire hazard classification.
- E. 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 Specification for Aluminum and Aluminum Alloy Sheet and Plate
 - 2. ASTM C 719 Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement (Hockman Cycle)
 - 3. ASTM C 794 Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
 - 4. ASTM C 920 Specification for Elastomeric Joint Sealants
 - 5. ASTM D 312 Specification for Asphalt Used in Roofing
 - 6. ASTM D 1863 Specification for Mineral Aggregate Used on Built-up Roofs

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

7. ASTM D 2178 Specification for Asphalt Glass Felt Used in Roofing and Waterproofing
8. ASTM D 2824 Specification for Aluminum - Pigmented Asphalt Roof Coatings
9. ASTM D 4586 Specification for Asphalt Roof Cement, Asbestos Free
10. ASTM A 361 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. Federal Specifications:

1. LLL-I-535B
2. SS-A-701B
3. SS-C-153
4. SS-C-153C
5. SS-R-620B
6. TT-C-498C
7. TT-P-320D
8. TT-S-00227E
9. TT-S-00230C
10. SS-S-001534 (GSA-FSS)
11. L-P-375

C. 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

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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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 afterburner 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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.

1.08 WARRANTY

A. **Twenty (20) Year NDL:** 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 **five (5) years** from the date of Substantial Completion.
2. Membrane manufacturer shall provide the written warranty as specified.
3. 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.
4. 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 SUBMITTALS paragraph in this section 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

2.02 ROOFING MEMBRANE

- A. Contractor Note: ONLY membrane allowed at 50-mil is provided by Fibertite membrane. All other membranes shall be 60-mil or larger not including thickness for the fleeceback.
- B. Shall be a Elvaloy based PVC membrane reinforced with DuPont Elvaloy KEE resin modifier polyester reinforced membrane, white, minimum thickness 50-mil for meeting **ASTM 6754** by Fibertite.
- C. Shall be a PVC based membrane reinforced with DuPont Elvaloy KEE resin modifier polyester reinforced membrane, white, minimum thickness 60-mil for meeting **ASTM 4434**.
- D. Roof Membrane: Only 50-mil membrane allowed is Fibertite 50-mil XT. All other membranes will be required to be a minimum 60-mil membrane with fleeceback.
1. Fibertite XT-FB Membrane by Fibertite Roofing **Basis of design**
 2. Firestone PVC KEE by Firestone
 3. EverGuard PVC XK 60mil FB by GAF
 4. JM PVC DuPont Elvaloy KEE by Johns-Manville
- E. The white 50 mil polyester reinforced fleece backed Elvaloy® membrane by **Fibertite** shall have the following minimum physical properties.

<u>Property</u>	<u>Test Procedure</u>	<u>Physical Properties</u>
Color		White
Thickness, mm (in.)	ASTM D 751	50 mil nom.
Thickness over Fiber, mm (in)	Optical method (inches)	.38 (0.015)
Breaking Strength, N (lbf)	ASTM D 751 proc. B – strip	1779 (400)
Elongation at Break, %	ASTM D 751 – strip	18
Tear Strength, N (lbf)	ASTM D 751 Proc. B. Tongue Tear	556 (125)
Linear Dimensional Change	ASTM D 1204 max (%)	0.78
Fabric Adhesion, N/m (lbf/in)	ASTM D 751	no peel
Retention of Properties	ASTM D 3045 - 176°F/56 days	
after Heat Aging	Breaking Strength, strip, % original	90
	Elongation at Break, strip, % original	90
Low Temperature Bend after Heat Aging		-30 -40
Low Temperature Bend	ASTM D 2136 (°f)	-30 -40
Change in Weight after Exposure in Water	D 471 158°F, 166 h, one side only, max. (%)	0.0, +3.7
Factory Seam Strength, N (lbf)	ASTM D 751 Grab Method	> Fabric Break
Hydrostatic Resistance, Mpa (psi)	ASTM D751	5.9 (850)
Static Puncture Resistance	ASTM D 5602 (99 lbf)	pass
Dynamic Puncture Resistance (J)	ASTM D 5635	30
Accelerated Weathering	Practice G 155 / xenon	>10000hr
Fungi Resistance	ASTM G 21	no growth
Initial Solar Reflectance	ASTM C1549	0.87
Solar Reflectance (3 yr aged)	ASTM C1549	0.71
Initial Thermal Emittance	ASTM C1371	0.85
Thermal Emittance (3 yr aged)	ASTM C1371	0.84
Solar Reflective Index (SRI)	ASTM E1980	110
Underwriters Laboratory		Class A
Factory Mutual		Class 1-90

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- F. The white 80 mil polyester reinforced fleece backed Elvaloy® membrane shall have the following minimum physical properties.

<u>Property</u>	<u>Test Procedure</u>	<u>Physical Properties</u>
Color		White
Thickness	ASTM D 751	60 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. The flashing membrane shall be a white Elvaloy® polyester reinforced flexible sheet provided by **Fibertite**.

<u>Property</u>	<u>Test Procedure</u>	<u>Physical Properties</u>
Color		White
Thickness	ASTM D 751	50 mil Nominal
Breaking Strength	ASTM D 751	400 lbf
Seam Strength	ASTM D 751	>Fabric Break
Tear Strength	ASTM D751	125 lbf
Elongation	ASTM D 751	18%
Heat Aging	ASTM D 3045	90%
Static Puncture Resistance	ASTM D 5602	Pass
Dynamic Puncture Resistance	ASTM D 5635	30(J)
Low Temperature Bend	ASTM D 2136	Pass @ -40°F
Permeance	ASTM E 96 A (gm/m2/24hr)	1.3
Dimensional Stability	ASTM D 1204 max (%)	0.78%
Wt. Change after Immersion	ASTM D 471	3.70%
Accelerated Weathering	ASTM G 155	>10000hr
Fungi Resistance	ASTM G 21	No growth none
Solar Reflectivity	ASTM C 1549	0.87
Solar Emissivity	ASTM C 1371	0.85
Solar Reflectance Index (SRI)	ASTM E 1980	110

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

Underwriters Laboratory	Class A
Factory Mutual	Class 1-90

- B. The flashing membrane shall be a white Elvaloy® polyester reinforced flexible sheet.

<u>Property</u>	<u>Test Procedure</u>	<u>Physical Properties</u>
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.
1. Description: Non-reinforced thermoplastic white membrane, thickness approximately 45 mils or specific to the manufacturer's requirements and to meet warranty.
 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.

<u>Slope</u>	<u>Interply</u>	<u>Top Pour</u>	<u>Backnail</u>	<u>Strap</u>
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 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 (modified with coal-tar or asphalt as required), or approved equal.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 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 day cure)
Service temperature	-40° F to 200° F

2.07 UNDERLAYMENT PLIES

- A. Shall be Underwriters Laboratory approved.
- B. Shall be SBS 80-mil (min) Smooth sanded base sheet, tested in accordance with ASTM D 5147 as listed under alternate of related roof areas.

2.08 INSULATION

- B. The existing lightweight insulated concrete roof deck is and appears to have R-25 built into the system, no additional polyisocyanurate insulation is required.

2.09 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. 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.

2.10 FASTENERS

- A. Fasteners and fastening plates or bars shall be as recommended by the fastener manufacturer for the specific application.
- B. 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.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

2.11 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

2.12 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.

2.13 WOOD

- A. All nailers, cants and wooden curbs shall be fire rated, treated lumber as required by NRCA, FM Global and Underwriters Laboratory guidelines.

2.14 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.

2.15 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.

2.16 PIPE BANDS

- A. Stainless steel bands with self-locking heads.
- B. Tighten with hand tool for tension control and flush cut off.

2.17 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.

2.18 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

2.19 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.

2.20 BONDING ADHESIVE

- A. Shall be bonding adhesive as recommended by roof manufacturer.

2.21 LEAD FLASHING DRAINS

- A. Shall be four-pound (4#) lead, minimum thirty-six inches by thirty-six inches (36" x 36"), used for flashing of internal drains and if required my manufacturer per standard details

2.22 WALKWAY PAD

- A. The walkway pad shall have the following minimum physical properties, and be applied with edges heat or solvent welded.

<u>Property</u>	<u>Test Procedure</u>	<u>Physical Properties</u>
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

2.23 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.

2.24 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.

2.25 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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.

2.26 VERTICAL WALL SHIMMING MATERIAL

- A. Shall be 3/8" exterior grade plywood. Proper selection of material is required to achieve FM Global and UL guidelines.

2.27 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.

2.28 PRECAUTIONS

- A. Some of the indicated materials are extremely flammable and/or toxic. Use precautions indicated on can and carton labels.

2.29 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 an afterburner and visible thermometer.
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. Remove all roofing membranes to expose existing lightweight insulating concrete roof deck and repair as required to have a smooth and uniform deck surface.

3.03 CATEGORY II (NON-FRIABLE) ASBESTOS CONTAINING MATERIALS (ACM) REMOVAL

- A. Owner and Contractor agree to exonerate, indemnify, defend, and hold harmless the roofing material manufacturer from and against all claims, demands, lawsuits, damages, expenses and losses incurred by Contractor's removal of asbestos-containing materials from Owner's building and work site. Contractor must conduct its operations according to applicable requirements including but not limited to those established by:

9. Occupation Safety and Health Administration (OSHA).
10. Environmental Protection Agency (EPA).
11. Department of Transportation (DOT).
12. State or Local Air Pollution Control Authorities/Agencies.
13. State or Local Solid Waste or Hazardous Waste Authorities/Agencies.
14. State or Local Health Department(s).
15. State or Local Building Code Authorities.
16. Other federal, state or local agencies or authorities.

B. Contractor or Owner shall perform appropriate inspections, surveys and file timely notifications to proper authorities prior to starting roof renovation or demolition activities. Inspectors, project planners, project managers, contractors and workers involved in the roof project shall have appropriate training, licenses and registrations. Contractor and Owner shall be responsible for determining and implementing regulatory compliance activities, including but not limited to work practices, engineering controls, personal protection, air monitoring, testing, hazard communication, material handling, record retention, and arranging for waste disposal/handling.

C. Contractor must file a Uniform Hazardous Waste Manifest from proper landfill site for each load of asbestos containing material removed. Copies must be sent to Owner and material manufacturer/specifier. Transportation of waste shall be in accordance with applicable Department of Transportation (DOT) requirements.

3.04 INSULATION

- A. The existing lightweight insulated concrete roof deck is and appears to have R-25 built into the system, no additional polyisocyanurate insulation is required.

3.05 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.

3.06 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.

3.07 APPLICATION OF PLY SHEET(S)

- A. Mechanically attached base sheet shall be covered with one layer of 80-90 mil smooth sanded inter-ply membrane solidly mopped in type IV asphalt. Cold ply adhesive is allowable according to manufacturer's installation guidelines:

All layers shall be solid mopped at the nominal rate of thirty pounds (30#) \pm 20 percent per one hundred (100) square feet and 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.

1. (Note: If ply sheets are to be left exposed to the elements for more than 60 days, the top ply must be glazed coated with a solid mopping of Type IV asphalt at the nominal rate of thirty pounds (30#) per one hundred (100) square feet.

3.08 HOT APPLIED FLEECE BACKED MEMBRANE

- A. 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. T-Joint covers are required over all t joints on installations of thermoplastic roofing membranes equal to or greater than 60 mils in thickness. Center T-Joint cover over the t-joint and completely hot air weld the cover to the field membrane.
- 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.

3.09 FLASHING

- A. Flash all penetrations, metal edge systems, curbs 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.

3.10 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 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. Reseal 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.

3.11 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.

1 3.12 EDGING FLASHINGS

- 2
3 A. An NRCA-approved gravel stop/fascia system shall be installed in strict accordance with
4 published instructions to meet local code.
5

6 3.13 WALKWAY PADS

- 7
8 A. Adhere and heat weld walkway pads where shown on drawings or where required to provide
9 protected pathways from rooftop access points to mechanical or other equipment requiring
10 rooftop maintenance.
11

12 3.14 CLEANING

- 13
14 A. Clean exposed surfaces of excess cement, adhesive, sealants, mortar and paint associated
15 with the new work.
16 B. Clean work area of excess roofing materials and installation debris daily.
17
18 C. Repair or replace defaced or disfigured finishes caused by the work.
19

20 3.15 MEMBRANE CLEANING

- 21
22 A. After all membrane has been installed, it shall be cleaned with a cleaning agent compatible
23 with the membrane to return the membrane to like new appearance.
24

25 3.16 PROTECTION

- 26
27 A. Protect all building surfaces against damage from roofing work.
28
29 B. Where traffic must continue over finished, installed roofing system, protect membrane,
30 underlayment accessories and finishes from damage.
31

32 3.17 MEMBRANE PROTECTION

- 33
34 A. Where equipment pads, wood sleepers, or walkway slabs are to be installed over the roofing
35 membrane, an additional layer of the roofing membrane shall be installed between the
36 roofing membrane and the pad, sleeper, or slab. Due caution shall be exercised to prevent
37 roofing membrane damage during placement. Where required, membrane shall be welded
38 to field membrane to prevent slippage.
39

40 3.18 PIPING/CONDUIT

- 41
42 A. Piping/conduit shall be raised to NRCA recommended heights, and new supports furnished.
43 Permanent supports shall be installed upon pads approved by membrane manufacturer.
44 Coordinate work with Owner's representative.
45
46 B. All gas lines, piping, and conduits shall be coated with industrial grade yellow paint.
47

1 3.19 PIPE/EQUIPMENT SUPPORTS
2

3 A. Designated pipe/equipment supports shall be removed and replaced with new treated four
4 inch by four-inch (4" x 4") wood blocking. Pipe supports shall be placed approximately ten
5 feet (10') on center. New blocks shall be set on a double layer of membrane, and attached
6 to the pipe with suitable strapping. Double layer of membrane shall be adhered to the roof
7 surface.
8

9 B. Gas lines three inches (3") and over must be supported on wood block with pipe roll stands.
10

11 3.20 ROOF PLAQUE
12

13 A. Metal plaque shall be installed on the underside of each roof hatch or on the inside of the
14 maintenance room door. Location of plaque to be determined by Project Manager.
15

16 B. Plaque shall be fastened with stainless steel screws that are short enough to not penetrate
17 outer surface of hatch or door where mounted.
18

19 3.21 OVERNIGHT SEAL
20

21 A. Shall be performed according to accepted roofing practice as outlined in the NRCA Roofing
22 Manual, SPRI and membrane manufacturer's recommended procedure.
23

24 B. The roofing membrane shall be sealed to the roof deck or existing roof at the end of the day
25 or at the onset of inclement weather to prevent water from flowing into the completed roofing
26 system. Temporary seals shall be removed upon resumption of work.
27
28
29

END OF SECTION 07 54 19

SECTION 07 62 00
SHEET METAL AND MISCELLANEOUS ACCESSORIES

PART 1 - GENERAL

1.01 AREAS COVERED

A. Jane Long Building Roof

1.02 DEFINITIONS

ACM	Asbestos Containing Materials
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
CTEM	Coal-Tar Elastomeric Membrane
EPA	Environmental Protection Agency
EPS	Expanded Polystyrene
EVT	Equiviscous Temperatures
FM	Factory Mutual
IBC	International Building Code
KEE	Ketone Ethylene Ester
NDL	No Dollar Limit
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NRCA	National Roofing Contractors Association
OSHA	Occupational Safety & Health Administration
SBS	Styrene-Butadiene-Styrene
SDI	Steel Deck Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPRI	Single Ply Roofing Industry
UL	Underwriters Laboratories, Inc.

1.03 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 for Testing and Materials (ASTM)
- E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual
- F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual

G. American Society of Civil Engineers – ASCE 7

1.04 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.
3. Installer must be an experienced single firm specializing in the type of roofing repair and/or removal and replacement work required, employing only experienced workers for the class of work in which they are employed, having at least five (5) years successful experience on projects similar in size and scope and acceptable as applicators by the Project Manager/Architect.
4. Contractor must have successfully completed previous projects warranted by the manufacturer.

B. It shall remain each Bidder's responsibility to determine his current status with the manufacturer's certification plan.

1.05 MANUFACTURER QUALIFICATIONS

A. A qualified manufacturer is one that is UL listed and has FM approvals for a membrane roofing system similar to that used for this project for a minimum of fifteen (15) years.

1.06 CONTRACT DOCUMENT QUALITY ASSURANCE

A. 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

1.07 SUBMITTALS

A. Product Data:

1. Submit shop drawings, product data and mockups of all sheet metal.

1.08 QUALITY ASSURANCE

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

1.09 PRE-INSTALLATION CONFERENCE

A. Convene a preinstallation conference two weeks prior to commencing the Work.

B. Require attendance of parties directly affecting the Work of this Section.

C. Review condition of roof deck and installation, installation procedures and coordination with related work.

1
2 1.10 WARRANTIES
3

- 4 A. Manufacturer's Product Warranty: Submit manufacturer's ten (10) year labor and material
5 warranty signed by the manufacturer's authorized official, guaranteeing to correct failures
6 in product which may occur during the warranty period, without reducing or otherwise
7 limiting any other rights to correction which the Owner/Project Consultant may have under
8 the contract documents. Failure is defined to include product failure which leads to
9 interruption of a watertight installation. Correction may include repair or replacement of
10 failed product.
11
- 12 B. Contractor's Warranty Period: For roofing flashing and sheet metal, provide a written
13 warranty which shall warrant work to be free of leaks and defects in materials and
14 workmanship for five (5) years, starting from date of substantial completion.
15
- 16 C. Defects of the sheet metal occurring during the warranty period shall be promptly
17 corrected by the contractor, and defects of the roofing shall be promptly corrected by the
18 manufacturer at no additional cost to the Owner. Upon notification from the Owner or the
19 Owner's representative that evidence of a defect exists, the responsible party shall
20 immediately inform the Owner's representative of the date on which corrective work will be
21 scheduled and shall notify the Owner's representative when the corrective work has been
22 completed.
23
24

25 **PART 2 - PRODUCTS**
26

27 2.01 SHEET METAL MATERIAL
28

- 29 A. Elvaloy® Cladded Metal for Pitch Pans: Shall be G-90 galvanized steel with 25 mil
30 Elvaloy® membrane when utilized on a PVC Elvaloy system and hot air welded to flashing
31 membrane. Gooseneck covers are required to be Stainless-steel, Minimum 24-gauge,
32 commercial quality, ASTM A 653/A 653M.
33
- 34 B. Stainless Steel for use as pitch pans when utilized on a SBS modified system: Minimum
35 24-gauge, commercial quality, ASTM A 653/A 653M.
36
- 37 C. Stainless Steel for use as counterflashings and goose neck covers: Minimum 24-gauge,
38 commercial quality, ASTM A 653/A 653M.
39
- 40 C. Hot-dipped Galvanized Steel for use as continuous clips: Minimum 22-gauge, G-90,
41 hot-dipped galvanized metal, commercial quality, ASTM A 653/A 653M.
42
- 43 D. Prefinished Galvanized Sheet Steel (where visible from the ground): Shall be 24-gauge
44 flat stock, prefinished with Kynar finish meeting ASTM A 446, forty-five and one-half
45 inches to forty-eight inches width by one hundred twenty inches in length (45-1/2" - 48" x
46 120") for use as new metal edge gravel guard, cover plates, downspouts, gutters, coping
47 and miscellaneous metal.
48
- 49 E. Stainless Steel: QQ-S-766, Class 304 or 316; or ASTM A 167, Type 304 or 316; form and
50 condition most suitable for the purpose.
51
- 52 F. Prefinished Aluminum: Shall be that most suitable for the purpose.

- 1
2 G. All existing sheet metal shall be replaced with new metal of like gauge and type, or as
3 specified on drawings.
4
5 H. All prefinished metal color shall be as selected by Owner/Architect from manufacturer's full
6 range of colors, including metallics.
7

8 **2.02 FASTENERS**
9

- 10 A. Fasteners shall be same metal as flashing/sheet metal, or other non-corrosive metal as
11 recommended by sheet manufacturer for the specific application. Match finish of exposed
12 heads with material being fastened.
13
14 B. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide.
15
16 C. Fastener for Brick: Shall be one-fourth inch by two inches (1/4" x 2"), zinc with plated steel
17 or stainless-steel nail, one piece unit, flat head.
18
19 D. Screws: Self-taping sheet metal type with neoprene washer, as appropriate.
20
21 E. Pop Rivets: Full stainless-steel Series 42 or 44, as appropriate.
22
23 F. Continuous Clip: Concealed hold-down clip type; of same materials as coping, gravel
24 guard, sized to suit application. Use a continuous clip, minimum 22-gauge G-90
25 galvanized.
26

27 **2.03 RELATED MATERIAL**
28

- 29 A. Plastic Cement: FS SS-C-153, cutback asphalt type.
30
31 B. Solder: QQ-S-571 composition best suited for purpose; use high tin content, minimum
32 60/40, for stainless steel and metal alloy.
33
34 C. Sealant (for Sheet Metal): One-component polyurethane, conforming to requirements of
35 FS TT-S-230C, non-staining and non-bleeding.
36
37 D. Miscellaneous Materials:
38 1. Splash Blocks: Concrete, 3000 psi, 28 days. Provide and install with protection
39 pads at all downspouts. Dimensions shall be a minimum eighteen inches wide by
40 thirty-six inches long (18" x 36").
41 2. Metal Accessories: Provide and install sheet metal clips, straps, anchoring devices,
42 and similar accessory units as required for installation of work, matching or
43 compatible with material being installed, non-corrosive, size, and gauge required for
44 performance.
45

46 **PART 3 - EXECUTION**
47

48 **3.01 INSPECTION**
49

- 50 A. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant
51 strips and reglets in place, substrates are smooth and clean and nailing strips located.
52

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 B. Verify membrane termination and base flashings are in place, sealed and secure, prior to
2 metal installation.
3
4 C. Beginning of installation means acceptance of conditions.
5
6 D. Compatibility: Provide materials that are recommended by manufacturers to be fully
7 compatible with indicated substrates or provide separation materials as required to eliminate
8 contact between incompatible materials.
9

10 3.02 PREPARATION

- 11
12 A. Field measure site conditions prior to fabricating work. Provide all shop drawings and
13 mock-ups one month prior to installation to the Owner/Project Consultant for approval.
14
15 B. Install starter and edge strips and cleats before starting installation.
16

17 3.03 FABRICATION - GENERAL

- 18
19 A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with
20 applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other
21 recognized industry practices. Fabricate for waterproof and weather-resistant
22 performance; with expansion provisions for running work, sufficient to permanently prevent
23 leakage, damage or deterioration of the work. Form work to fit substrates. Comply with
24 material manufacturer's instructions and recommendations. Form exposed sheet metal
25 work without excessive oil-canning, buckling, and tool marks, true to line and levels as
26 indicated, with exposed edges folded back to form hems.
27
28 B. Form sheet metal on bending brake.
29
30 C. Form materials with straight lines, sharp angles and smooth curves.
31
32 D. Fold back edges on concealed side of exposed edge to form hem (1/4" minimum).
33
34 E. Weld or solder joints on parts that are to be permanently and rigidly assembled.
35
36 F. Limit single-piece lengths to ten feet (10').
37
38 G. Fabricate corner pieces with eighteen-inch (18") extensions, mitered and sealed by
39 forming as one piece.
40
41 H. Where installing flashing directly to masonry or dissimilar materials, backpaint with
42 bituminous paint.
43
44 I. Install new metal rooftop projections. New rooftop projection details shall be as
45 recommended in NRCA or SMACNA handbooks. All rooftop projections shall be cleaned,
46 all joints sealed, and painted with a rust inhibitive paint.
47
48 J. All sheet metal shall be sealed and watertight.
49
50 K. Metal work should be secured so as to prevent damage from buckling or wind. Where
51 clips are shown, fabricate as detailed.
52

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- 1 L. All metal to receive bitumen or adhesive shall be first primed with asphalt primer.
- 2
- 3 M. All prefinished metal shall be sanded and/or abraded prior to receiving primer.
- 4
- 5 N. Separations: Provide for separation of metal from non-compatible metal or corrosive
- 6 substrates by coating concealed surfaces at locations of contact, with bituminous coating
- 7 or other permanent separation as recommended by manufacturer/fabricator.
- 8
- 9 O. Bed flanges of work in a thick coat of bituminous roofing cement where required for
- 10 waterproof performance.
- 11

12 **3.04 INSTALLATION**

13

- 14 A. General: All sheet metal termination to vertical wall shall have a through-wall with receiver
- 15 installed on masonry walls or prefabricated "Z" bar flashing pre-installed to fluid applied
- 16 wall finished prior to installation of sheet metal termination. This applies to edge metal,
- 17 base flashing closures and all vertical surface intersections. Refer to NRCA, SMACNA,
- 18 and metal manufacturer's guidelines.
- 19
- 20 B. Gravel Guard/Fascia:
- 21 1. Shall be installed with expansion joints, ten feet (10') on center, one-fourth inch (1/4")
- 22 expansion leeway, with a cover plate.
- 23 2. Form sections identical to profiles as shown or approved similar, to match existing
- 24 building.
- 25 3. Fabricate corner pieces with minimum eighteen-inch (18"), maximum forty-eight
- 26 inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
- 27 4. Hem exposed edges one-half inch (1/2") minimum.
- 28 5. Backpaint flashing in contact with masonry or dissimilar materials with bituminous
- 29 paint. Surface sand before applying primers.
- 30 6. Integrate flashing in a manner consistent with detailing.
- 31 7. Provide and install continuous clip, minimum 22 gauge.
- 32 8. Apply sealant at horizontal juncture of gravel guard metal to exterior vertical wall.
- 33 9. Shall be fabricated in accordance with published details.
- 34 10. Install bead of sealant at metal edge juncture at exterior wall surface.
- 35
- 36 E. Counterflashing:
- 37 1. Provide and install new two-piece sheet metal counterflashing as required for a
- 38 permanent watertight installation.
- 39 2. Saw cut brick mortar joint to receive friction fit reglet and removable counterflashing
- 40 as detailed in SMACNA 7th Edition Figure 4-4D.
- 41
- 42 F. Gutter and Downspout:
- 43 1. All Gutter and Downspouts shall be in compliance with Section 07 62 13 Gutter and
- 44 Downspouts
- 45
- 46 G. Overflow Scupper, Gutter and Downspout:
- 47 1. Fabrication:
- 48 a) Fabricate overflow scupper, collector head and downspout of profile and size
- 49 indicated, taking care that the roof drain leader fits properly. Seal the pipe to the
- 50 collector head for water tightness.
- 51 b) Field measure site conditions prior to fabricating work.
- 52 c) Fabricate with required connection pieces.

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FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

d) Fabricate section square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.

e) Hem exposed edges of metal.

f) Form and seal all metal joints; provide for expansion joints per SMACNA.

2. Installation:

a) Install collector head, downspout, and accessories.

b) Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.

c) Seal all metal joints watertight for full metal surface contact.

d) Downspouts: Rectangular profile. Seal all joints, six inches by six inches (6" x 6") minimum or as shown on published details.

e) Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.

f) Anchorage Devices: SMACNA requirements. Type recommended by fabricator.

g) Downspout Support Straps – Kynar.

I. Pitch Pans – Stainless Steel:

1. Install pitch pans of 24-gauge stainless steel according to NRCA standards, minimum of six inches by six inches (6" x 6").

2. Pitch pans shall be fabricated to minimum of four inches (4") above the finished roof membrane. Seams of pitch pans shall be soldered inside and out.

3. Mastic shall be applied under pitch pan flange a minimum of one-half pound (1/2#) per linear foot.

4. All metal flanges shall be primed with asphalt primer prior to flashing installation. Inside of pitch pan shall be cleaned and primed.

5. All projections enclosed in pitch pans shall be cleaned in any manner suitable and coated with a rust inhibitive coating as approved by the Owner/Project Consultant. Coating shall be allowed to dry prior to pitch pan fill.

6. Base of pitch pans shall be filled around penetration with M-1 sealant. Sprinkle mod bit granules over sealant 1/4" deep.

7. Top finish fill shall be coal-tar urethane, with maximum fill to within three-eighths inch (3/8") of top of pitch pan sides.

8. Strip metal flange of pitch pan with one strip of Type IV fiberglass felt set in hot bitumen extending from the outer edge of the flange a minimum of three inches (3") inward to base of pitch pan.

9. Strip in fiberglass felt with 60 mil coal-tar elastomeric membrane (CTEM) flashing set in hot asphalt extending from the outer edge of the Type IV fiberglass underlayment a minimum of three inches (3") inward to the base of the pitch pan.

J. Bonnets/Hoods:

1. Fabricate and install above all pitch pans, where necessary, or reinstall as applicable, metal bonnets over all pitch pans, NO EXCEPTIONS.

2. Bonnets/Hoods shall be manufactured with metal compatible with metal to which bonnet is to be attached.

3. On beams and other steel, weld in place bonnets fabricated from one-fourth inch (1/4") steel plate.

4. Draw band bonnets fabricated from 22-gauge galvanized steel may be used on circular projections.

3.05 FINISH

- A. Backpaint concealed metal surfaces with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals. 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.
- B. New 24-gauge hot-dipped galvanized metal shall be painted on all locations visible from the ground with an industrial grade paint as selected by Project Manager, including metallics. Galvanized metal surface must be properly prepared by removing all oil, grease, and/or protective mill coatings by solvent cleaning surface in accordance with SSPC-SP1, and according to paint manufacturer's recommendation, to ensure proper adhesion of paint to metal.

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 of 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 1.05 DELIVERY, STORAGE AND HANDLING

2
3 A. Stack preformed and prefinished material to prevent twisting, bending or abrasion, and to
4 provide ventilation. Slope to drain.

5
6 B. Prevent contact with materials during storage which may cause discoloration, staining or
7 damage.

8
9 1.06 SEQUENCING AND SCHEDULING

10
11 A. Coordinate work with roofing work for correct sequencing of items which makes up entire
12 weatherproof, rain drainage and sheet metal system.

13
14 B. Coordinate work with downspout discharge pipe inlet.

15
16 C. Coordinate gutter and downspout system with installation of field fabricated flashing and
17 sheet metal and sheet metal roofing under Section 07 62 00. Work of this Section shall
18 bring gutters and downspouts to point of connection with roofing system, with necessary
19 accommodations for connections.
20

21
22 **PART 2 - PRODUCTS**

23
24 2.01 MATERIALS

25
26 A. Pre-Coated Galvanized Steel: ASTM A 446, Grade A, G 90 zinc coating, 24-gauge core
27 steel, shop pre-coated.

28
29 B. Fasteners: Galvanized steel screws, bolts or nuts, as applicable.

30
31 C. Stiffener Angles and Supports: Formed steel, type to match gutters, 18-gauge and clad
32 with prefinished metal cover.

33
34 D. Solder: ASTM B 32, 50-50 percent tin/lead solder with rosin flux for use with steel.

35
36 E. Neutralized: Five percent (5%) to ten percent (10%) washing soda solution.

37
38 F. Protective Back Paint for Galvanizing: Zinc chromate or galvanized iron type.

39
40 G. Bituminous Coating: FS TT-G-494, or MIL-C-18480, or SSPC-12, cold-applied bituminous
41 mastic, compound, for 15 mil dry film thickness coating.

42
43 H. Wire Screen: One-half inch (1/2") mesh, stainless steel.

44
45 I. Splash Pads or Blocks: Precast concrete type; minimum 3000 psi at 28 days, with
46 minimum five percent (5%) air entrainment.
47

48 2.02 FABRICATION

49
50 A. Gutters: SMACNA style profile as detail by Engineer.

51
52 B. Downspouts: SMACNA profile as detailed by Engineer.

PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX

- 1
2 C. Fabricate gutters and downspouts true to design and dimensions, straight and without
3 deformation. Finish work free from blemishes, abrasions, tool marks, burrs and other
4 defects which may affect strength or performance. Form corners to smallest radius
5 possible without causing grain separation or otherwise impairing work. Allow for
6 expansion and contraction.
7
8 D. Overlap gutter sections min. 3-inches with multiple beads of sealant and 2 rows of pop
9 rivets. Apply sealant across inside joint from top to bottom. Form expansion joints
10 between gutter sections as shown.
11
12 E. Form gutters in eight foot (8') or ten foot (10') long welded sections, lap joints one and
13 one-half inch (1-1/2"). Provide loose-locked expansion joints midway between outlet tubes
14 and where gutter ends adjoin walls. Fit joints with cover strips in manner to provide
15 watertight connections.
16
17 F. Provide outlet tubes with flanges riveted and soldered to form gutters. Extend tubes three
18 inches (3") into downspouts. Set gutters to slope to downspouts minimum one-eighth inch
19 (1/8") for each foot.
20
21 G. Form downspouts in eight foot to ten foot (8' - 10') lengths. Telescope end joints one and
22 one-half inch (1-1/2") and lock longitudinal joints. Fasten downspouts to walls with three
23 inch (3") wide straps. Space straps not more than eight feet (8') apart. Provide shoulder
24 of solder on each side of downspout above each strap. Fasten straps to walls with screws
25 in lead sleeves. Form downspouts of length to discharge water three feet to zero inches
26 (3' - 0") from building slab.
27
28 H. Lock and solder, or weld without flux all seams. Close tops of downspout heads with
29 18-gauge removable strainer type with wire screen.
30
31 I. Field measure site conditions prior to fabricating work.
32
33 J. Fabricate with required connection pieces.
34
35 K. Hem exposed edges of metal.
36
37 L. Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.
38
39 M. Anchorage Devices: SMACNA requirements. Type recommended by fabricator.
40
41 N. Downspout Supports: 18-gauge straps, Kynar. Color and finish to match gutter.
42
43 O. Gutter straps and supports to be 18-gauge and clad with prefinished metal cover as
44 detailed.
45
46 P. Seal all metal joints watertight for full metal surface contact.
47
48 Q. Downspouts: Rectangular profile. Seal all joints, six inches by six inches (6" x 6").
49

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 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 day cure)

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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-106c.

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.

2.09 SEALANT BACKER ROD

- A. Provide compressible rod stock 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.

2.10 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.

2.11 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

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 were 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.

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 B. Comply with ASTM C1193 for application of joint sealants.
2
3 C. Equipment:
4 1. Apply sealant under pressure with power-actuated or hand gun, or by other
5 appropriate means.
6 2. Use guns with nozzle of proper size, and providing sufficient pressure to completely
7 fill the joints as designed.
8
9 D. Thoroughly and completely mask joints where the appearance of sealant on adjacent
10 surfaces would be objectionable.
11
12 E. Install the sealant in strict accordance with the manufacturer's recommendations as
13 approved by the Consultant, thoroughly filling joints to the recommended depth.
14
15 F. Tool joints to the profile shown on the Drawings, or as otherwise required if such profiles
16 are not shown on the Drawings.
17
18 G. Do not install sealant when air temperature is under 40 degrees F. Sealant temperature to
19 be at least 50 degrees F; controlled warming permitted to ease installation.
20
21 H. Cleaning up:
22 1. Remove masking tape immediately after joints have been tooled.
23 2. Clean adjacent surfaces free from sealant as the installation progresses, using
24 solvent or cleaning agent recommended by the manufacturer of the sealant used.
25
26 3.07 HORIZONTAL EXTERIOR JUNCTURE OF METAL EDGE AND COPING TO EXTERIOR
27 WALL, REGLET JOINTS, CAULK JOINTS, WALL JOINTS, AND WALL CRACKS ABOVE THE
28 ROOF LINE
29
30 A. All reglet and horizontal edge metal and coping metal on exterior of wall shall be raked clean
31 of loose materials and debris, and sealed with caulk sealant. Sealant shall be properly
32 installed and tooled in a workmanlike manner to ensure permanent seal.
33
34 B. All open coping and masonry terminations and intersections shall be cleaned out and sealed
35 with backer rod and caulk sealant. Backer rod shall be minimum one and one-half (1-1/2)
36 times the width of the opening to be sealed. Caulk sealant thickness shall be minimum of
37 one-half (1/2) of the width of the opening to be sealed.
38
39 C. Clean joint surfaces immediately before installation of gaskets, sealant or caulking
40 compound. Remove dirt, insecure coatings, existing sealant, moisture, and other
41 substances which could interfere with seal of gasket or bond of sealant or caulking
42 compound. Etch concrete and masonry joint surfaces as recommended by sealant
43 manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant
44 manufacturer.
45
46 D. Prime or seal joint surfaces where indicated, and where recommended by sealant
47 manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or
48 migration onto adjoining surfaces.
49
50 E. Comply with manufacturer's printed instructions except where more stringent requirements
51 are shown or specified, and except where manufacturer's technical representative directs
52 otherwise.

- 1
2 F. Install sealant backer rod for liquid-applied sealants, except where shown to be omitted or
3 recommended to be omitted by sealant manufacturer for application indicated.
4
5 G. Employ only proven installation techniques, which will ensure that sealants are deposited in
6 uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint to
7 bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to
8 a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are
9 between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint
10 will not trap moisture and dirt.
11
12 H. For normal moving joints to be sealed with elastomeric sealants but not subject to traffic, fill
13 joints to a depth equal to 50% of joint width, but neither more than one-half inch (1/2") deep
14 nor less than one-fourth inch (1/4") deep.
15
16
17
18
19

END OF SECTION 07 92 00

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
- 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 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-fiberglassed aluminum.

1.03 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 identifying labels on the containers.

1.04 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.

1.05 JOB CONDITIONS

**PROPOSAL: JANE LONG- ROOF REPLACEMENT
FORT BEND COUNTY FACILITIES MANAGEMENT, FORT BEND, TX**

- 1 A. Full coverage will be required for the application specified. Apply additional coats if
2 required to produce full coverage.
3
4 B. Make each coat of paint slightly darker than the preceding coat, unless otherwise directed.
5
6 C. Where new Work adjoins existing painted surfaces, carry new painting to an appropriate
7 stopping point along the existing painted surface.
8

9 **1.06 WARRANTY**

- 10
11 A. Guarantee all Work performed under this Contract for a period of five (5) year from the date
12 of Substantial Completion against all defects in materials and Workmanship. Defective
13 Work includes cracking, peeling, scaling of paint, water absorption or rusting.
14
15

16 **PART 2 - PRODUCTS**

17
18 **2.01 SCHEDULE OF PAINTING**

- 19
20 A. Unless otherwise noted, all paints specified are epoxy coating products. The kinds of paint
21 and the number of coats required on the surfaces shall be as follows:
22
23 B. Surface Preparation: Scrape and sand free all loose paint, rust and foreign materials.
24 Sand paint nicks to feather-smooth surface edges. Prepare structural metal surfaces to
25 receive the following paint schedule:
26 1. First Coat: Epoxy Primer as recommended by manufacturer
27 2. Second Coat: Epoxy finish coating.
28
29

30 **PART 3 - EXECUTION**

31
32 **3.01 INSPECTION**

- 33
34 A. Review the surfaces to be painted and coordinate with the responsible subcontractor to
35 assure correctness of the surfaces. Report painting-related problems to the Consultant.
36
37 B. Proceeding with the installation of painting shall be construed as evidence of acceptance of
38 the conditions under which painting Work will be accomplished.
39

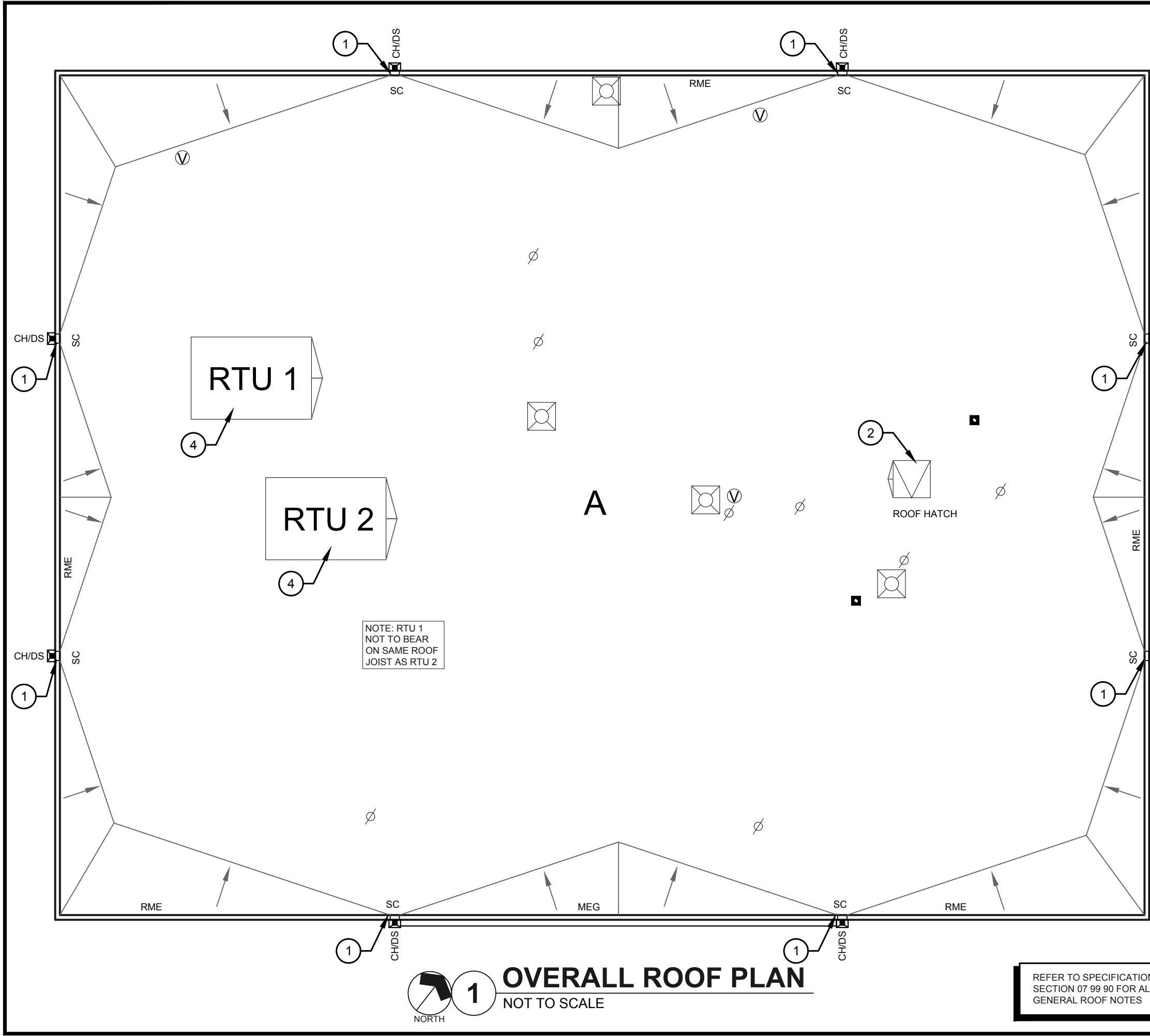
3.02 PREPARATION

- 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 coatings in damp, rainy weather, or until the surface has thoroughly dried from the effects of such weather. Do not apply 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 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 coating adjoining other materials or colors sharp and clean by overlapping.

END OF SECTION 09 91 00



- SPECIFIC ROOF NOTES:
1. TIE NEW THROUGH EDGE SCUPPER AND NEW COLLECTOR BOX INTO NEW OVERSIZED DOWNSPOUTS MATCHING SIZE AND LOCATION.
 2. WIRE BRUSH, TREAT RUST AND PAINT EXISTING ROOF HATCH WITH ALUMINIZED PAINT.
 3. METAL EDGE GUTTER AS DETAILED.
 4. CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR REFERENCING DETAILS RS-2.01- RS2.05

- SCOPE OF WORK
- BASE PROPOSAL: JANE LONG BUILDING**
- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL ROOF REPLACEMENT. THE ENTIRE ROOFING SYSTEM IS TO BE REMOVED DOWN TO THE EXISTING LIGHTWEIGHT CONCRETE OVER STRUCTURAL CONCRETE ROOF DECK.
 - INSTALL 1-LAYER OF VENTED BASE SHEET, MECHANICALLY INSTALLED TO THE LIGHT-WEIGHT CONCRETE ROOF DECK. CONTRACTOR IS RESPONSIBLE FOR ANY PULL TESTS REQUIRED BY MANUFACTURER.
 - INSTALL 1-LAYER OF VENTED BASE SHEET, MECHANICALLY INSTALLED TO THE LIGHT-WEIGHT CONCRETE ROOF DECK. CONTRACTOR IS RESPONSIBLE FOR ANY PULL TESTS REQUIRED BY MANUFACTURER.
 - INSTALL 90-MIL SMOOTH SANDED BASE PLY (TORCH APPLICATION) AS PART OF A MULTI-PLY PVC ROOF SYSTEM AS REQUIRED BY MANUFACTURER.
 - INSTALL 1-LAYER OF 50MIL FLEECEBACK ELVALOY PVC MEMBRANE SET IN COLD PROCESS ADHESIVE AS PRIMARY MEMBRANE TO BE USED. FIBERTITE 50-MIL XT BY DESIGN
- ALTERNATE PROPOSAL: JANE LONG BUILDING**
- WORK SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE A FULL ROOF REPLACEMENT. THE ENTIRE ROOFING SYSTEM IS TO BE REMOVED DOWN TO THE EXISTING LIGHTWEIGHT CONCRETE ROOF DECK OVER A STRUCTURAL CONCRETE POURED OVER A METAL PAN.
 - CONTRACTOR TO REPAIR ALL EXISTING LIGHTWEIGHT CONCRETE DAMAGE FROM PRIOR SYSTEM BEING REMOVED AND DECK MUST BE DOCUMENTED AND INSPECTED PRIOR TO ROOFING.
 - INSTALL 1-LAYER OF VENTED BASE SHEET, MECHANICALLY INSTALLED TO THE LIGHT-WEIGHT CONCRETE ROOF DECK. CONTRACTOR IS RESPONSIBLE FOR ANY PULL TESTS REQUIRED BY MANUFACTURER.
 - INSTALL A 2-PLY MODIFIED "COOL ROOF" SBS ROOFING SYSTEM, TORCH APPLIED. GAF RUBBEROID ENERGY CAP AS BASIS OF DESIGN.



03/07/2022

REFER TO SPECIFICATION
SECTION 07 99 90 FOR ALL
GENERAL ROOF NOTES

ROOF LEGEND	
	LOW SLOPE ROOF SYSTEM
	NOT IN CONTRACT

ARMKO INDUSTRIES, INC.
Texas Registered
Engineering Firm F-6498
22503 Katy Frwy Suite 9
Houston, TX 77450
1(888)874-1388

Contractor shall verify all
substrates, dimensions,
penetrations, curbs, etc.
Those shown are typical
but may not be all inclusive.

PROJECT NO. 21-1185-42

DATE: 03/07/2022

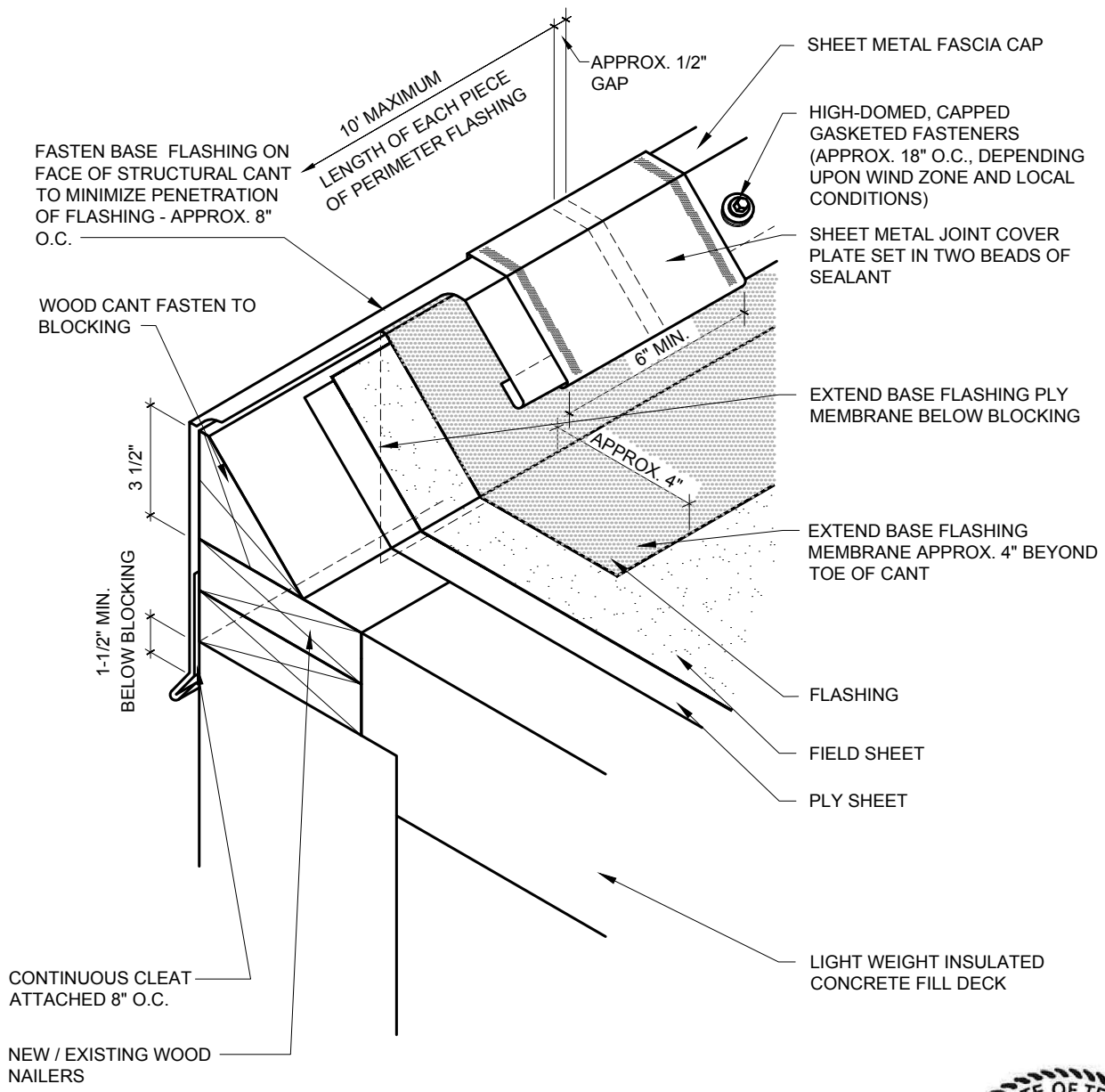
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100% CONST. DOCUMENTS

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PROJECT FOR
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500 LIBERTY STREET
RICHMOND, TEXAS 77469

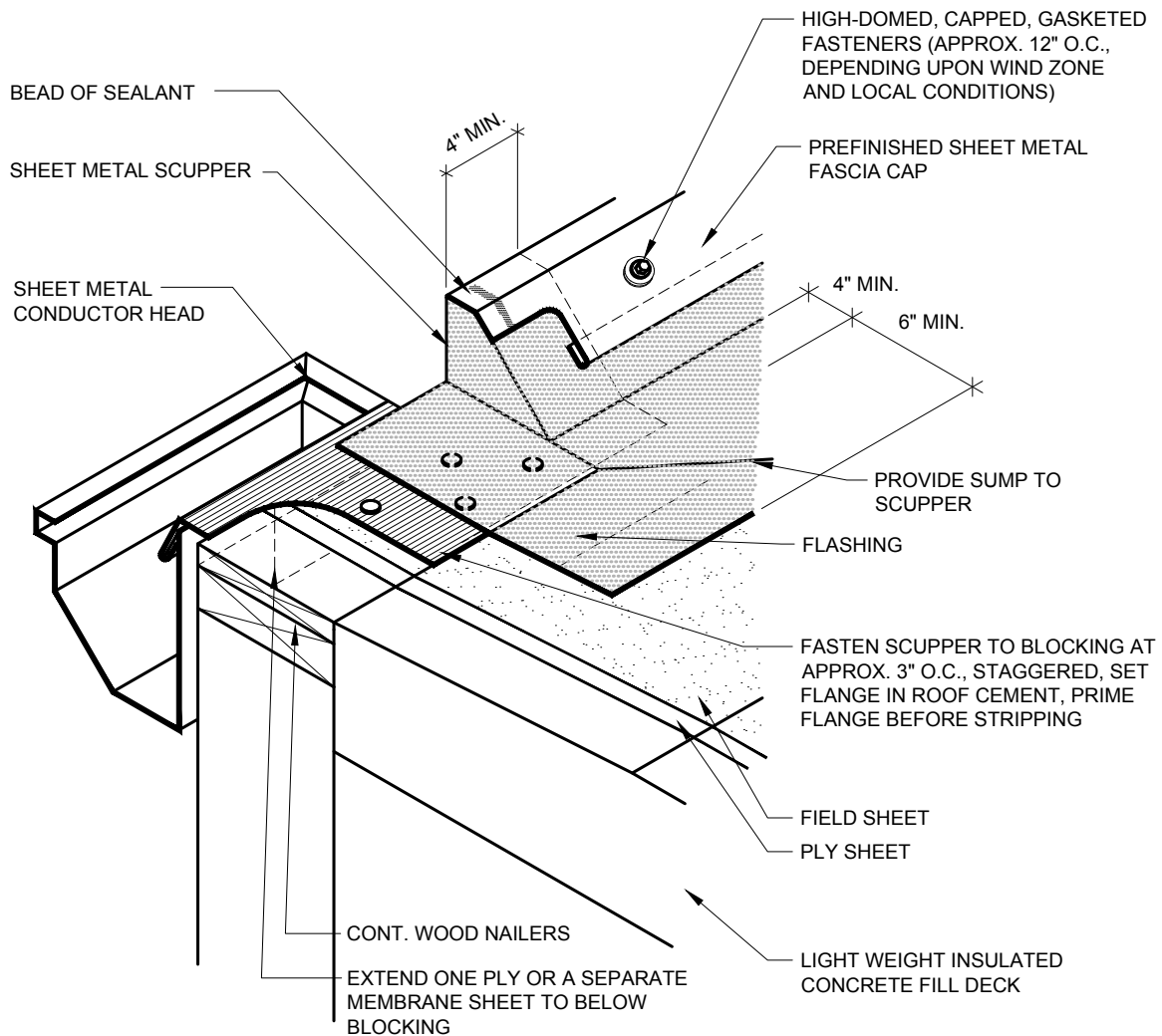
R1.01



03/07/2022



PROJECT FOR: FORT BEND COUNTY JANE LONG 500 LIBERTY STREET RICHMOND, TEXAS 77469			R2.01
DETAIL NAME: MULTY PLY PVC - RAISED METAL EDGE - BASE			
PROJECT NO: 21-1185-42		100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 03/07/2022	DRAWN BY: CB	



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.02

DETAIL NAME: MULTY PLY PVC - THROUGH EDGE SCUPPER - BASE

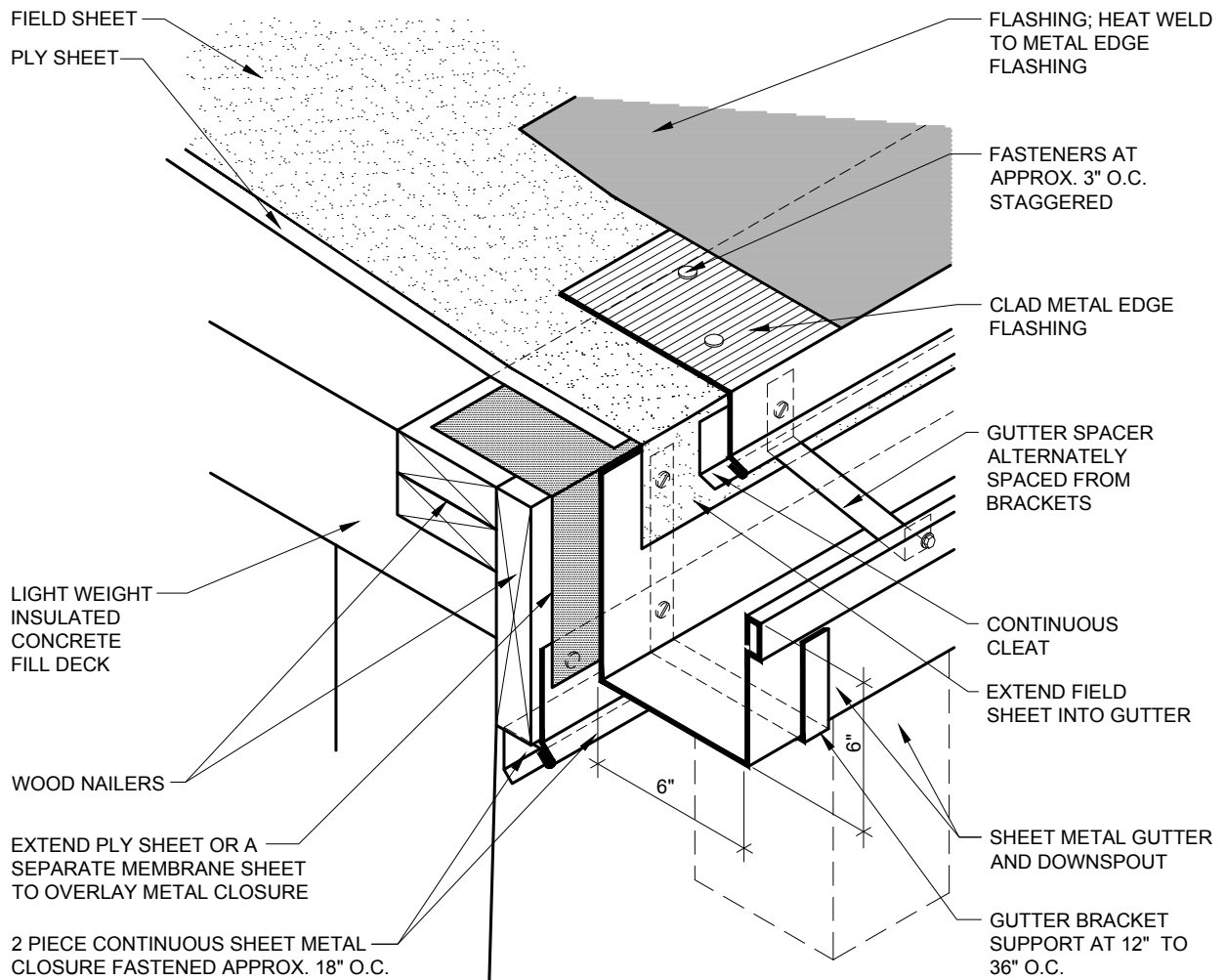
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SCALE : NOT TO SCALE

DATE: 03/07/2022

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03/07/2022



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JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.03

DETAIL NAME: MULTY PLY PVC - METAL EDGE GUTTER - BASE

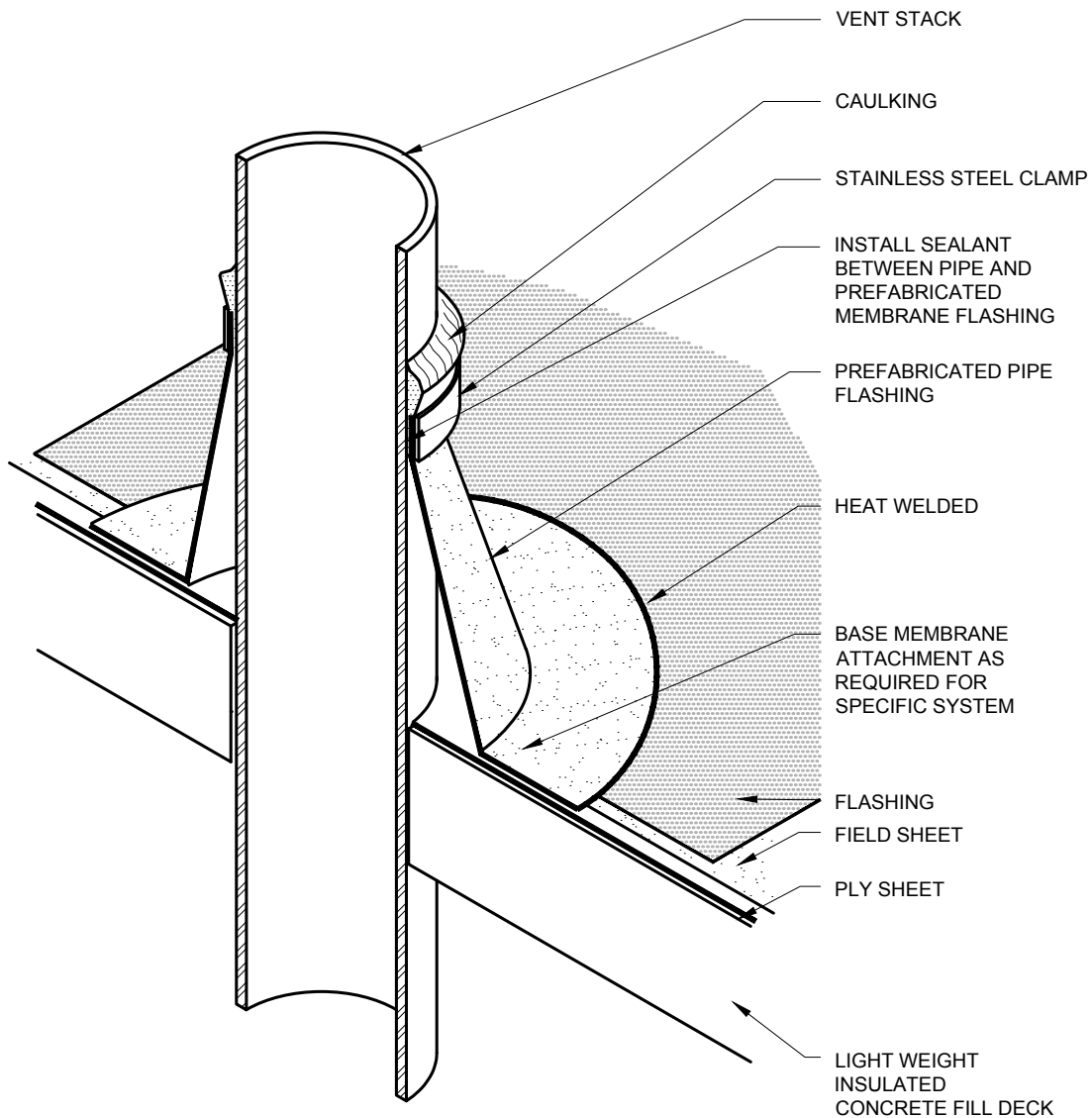
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JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.04

DETAIL NAME: MULTY PLY PVC - VENT STACK - BASE

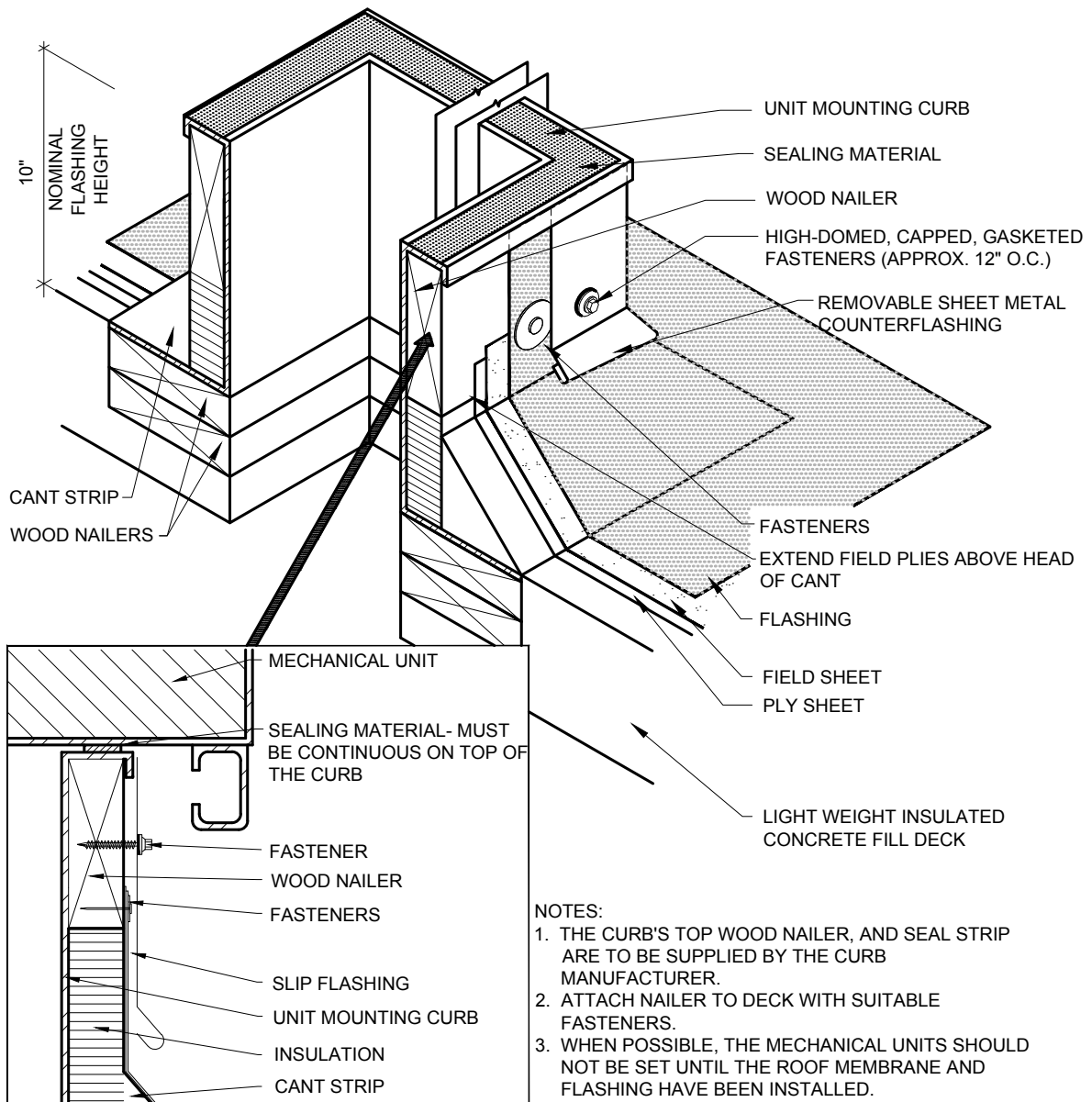
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03/07/2022



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JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.05

DETAIL NAME: MULTY PLY PVC - MECHANICAL CURB - BASE

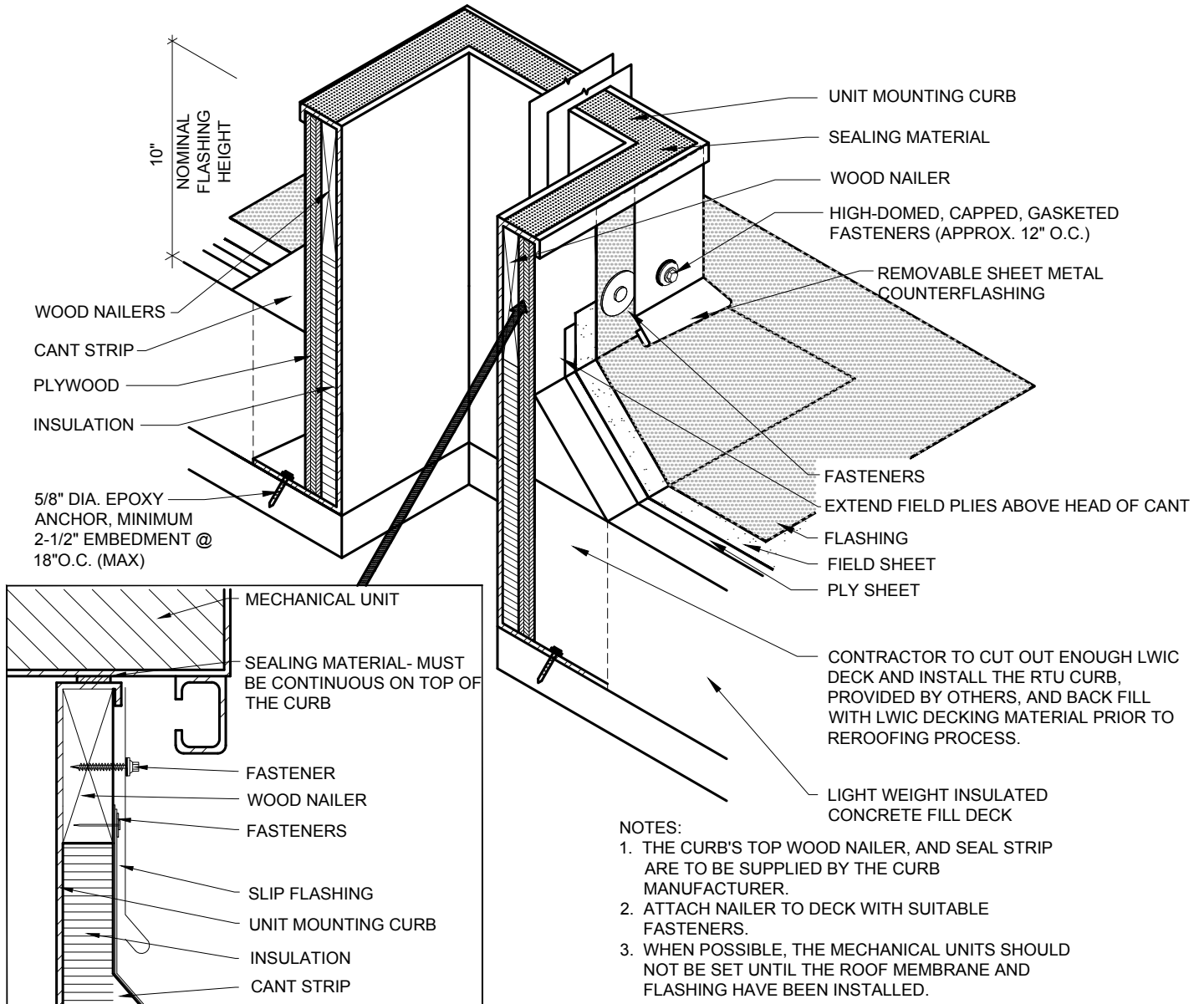
PROJECT NO: 21-1185-42

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03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.06

DETAIL NAME: MULTY PLY PVC - RTU CURB - BASE

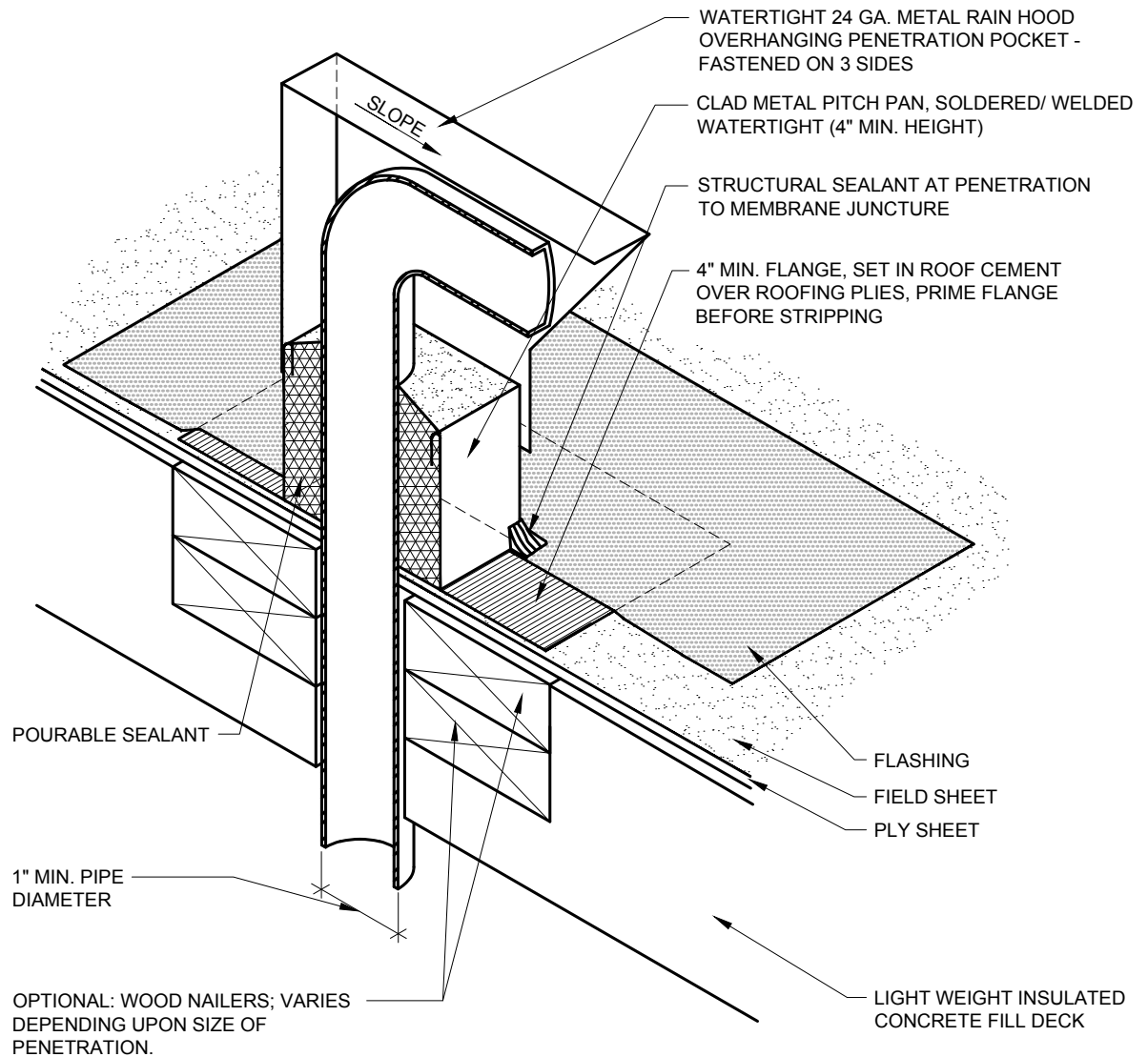
PROJECT NO: 21-1185-42

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SCALE : NOT TO SCALE

DATE: 03/07/2022

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03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.07

DETAIL NAME: MULTY PLY PVC - GOOSE NECK PITCH PAN - BASE

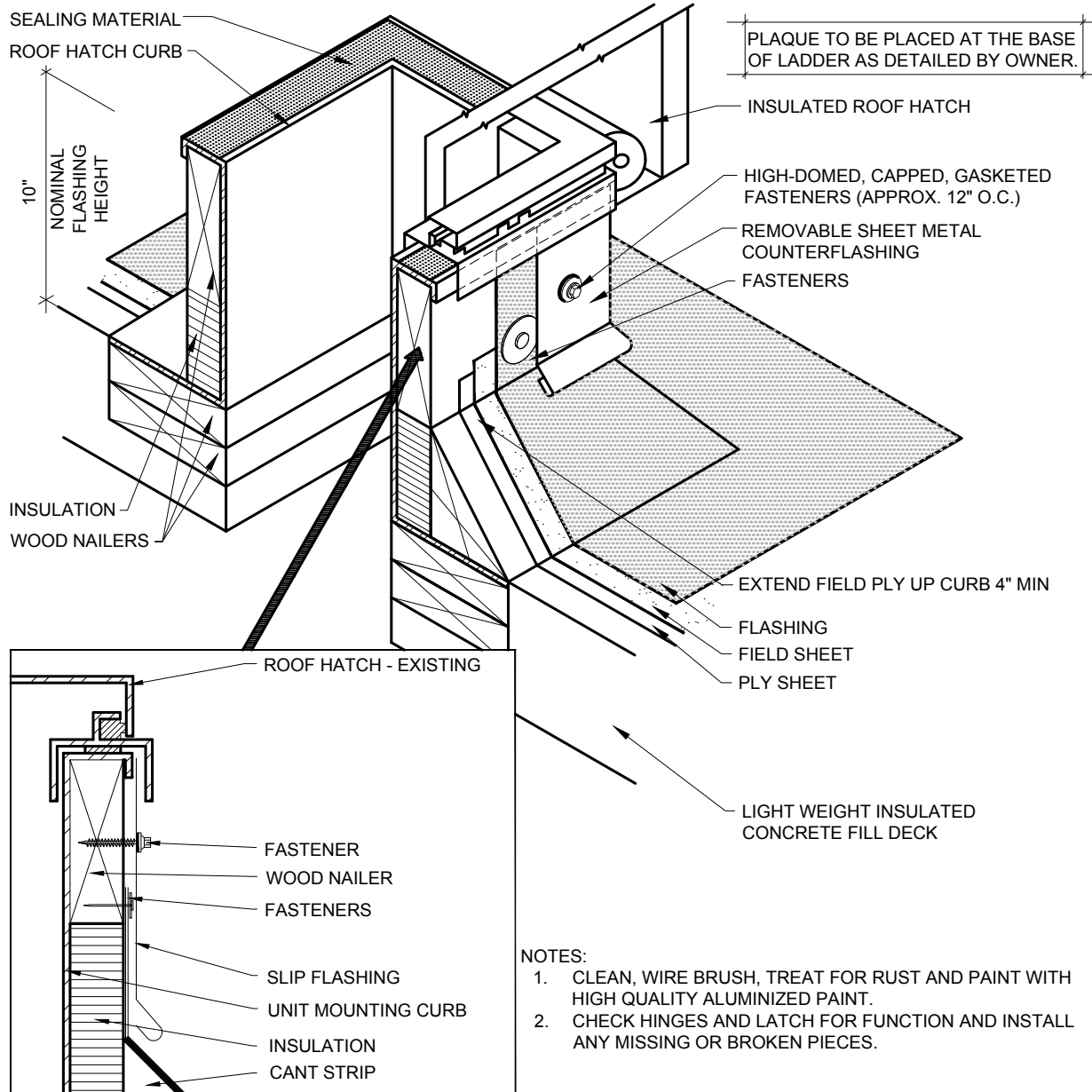
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

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03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.08

DETAIL NAME: MULTY PLY PVC - ROOF HATCH - BASE

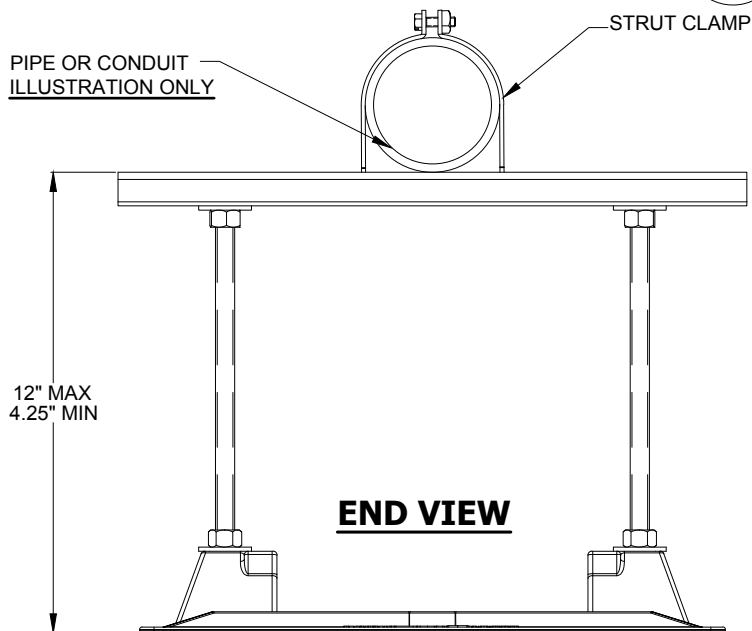
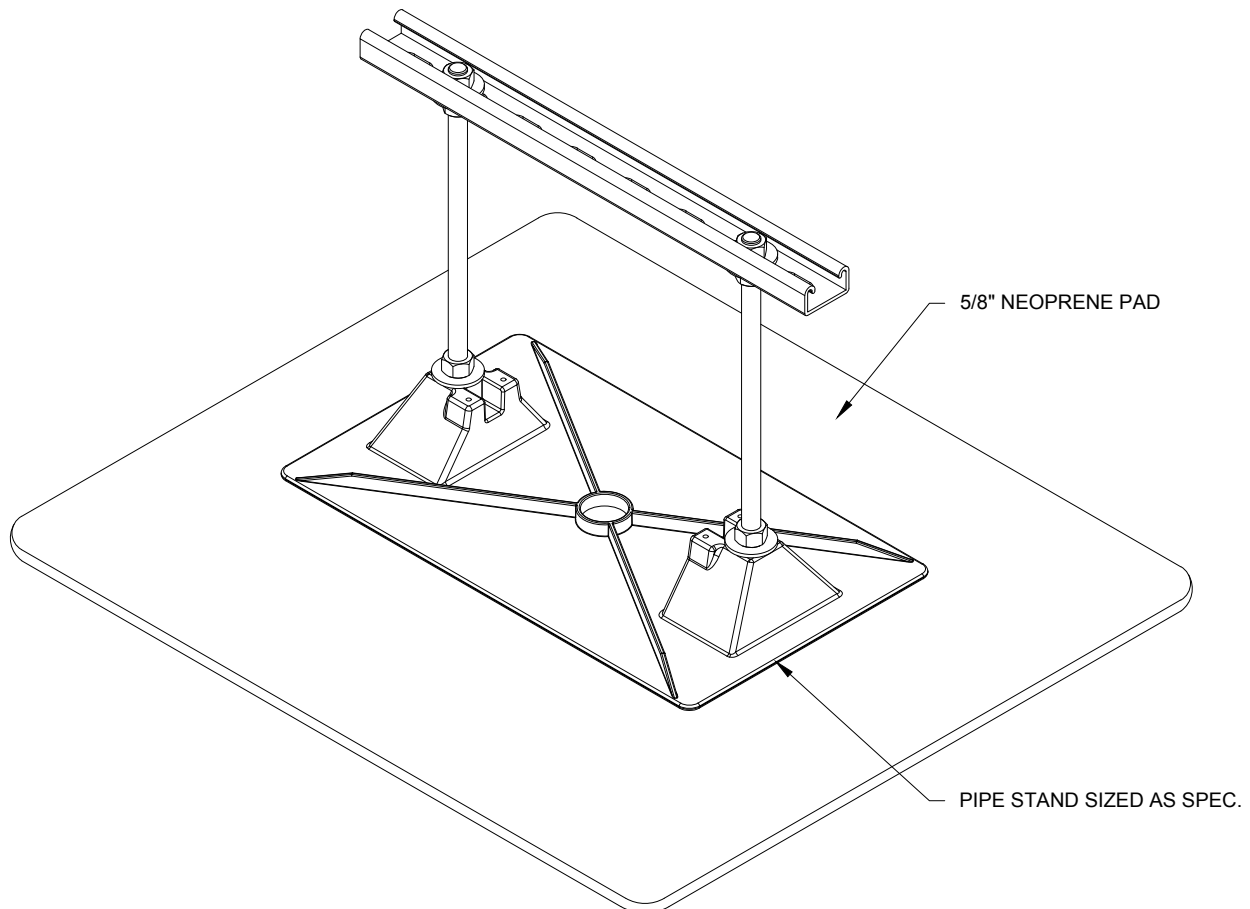
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

DRAWN BY: CB



NOTES:

1. SUPPORT LEG SIZE IS DEPENDANT ON PIPE OR CONDUIT SIZE. MANUFACTURER TO PROVIDE PROPER SIZING BASED ON FIELD CONDITIONS.
2. SET ON SACRIFICIAL SHEET.



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.09

DETAIL NAME: PIPE SUPPORT WITH CLAMP - BASE

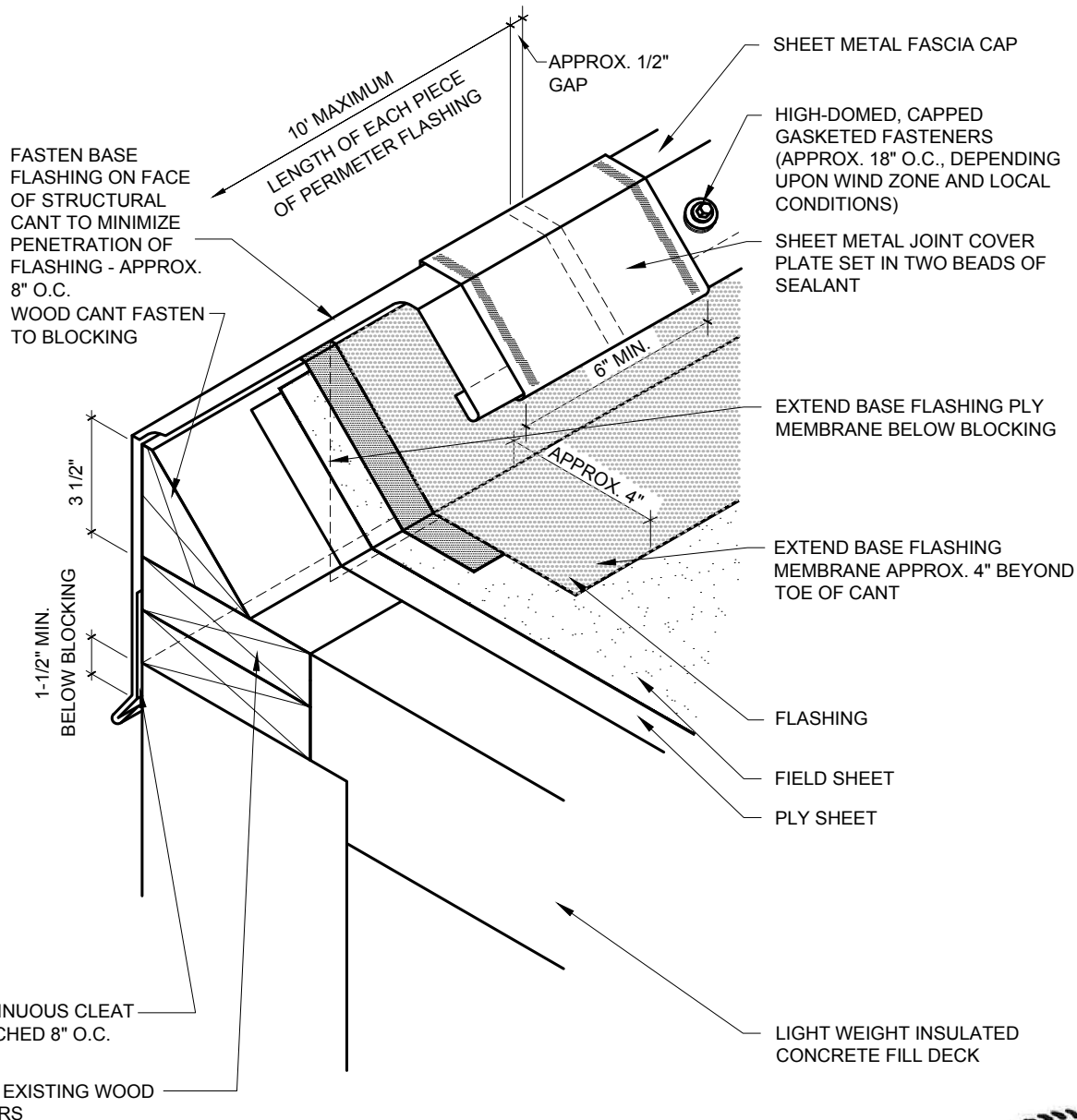
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

DRAWN BY: CB



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.01A

DETAIL NAME: 2 PLY MOD BIT - RAISED METAL EDGE - ALTERNATE

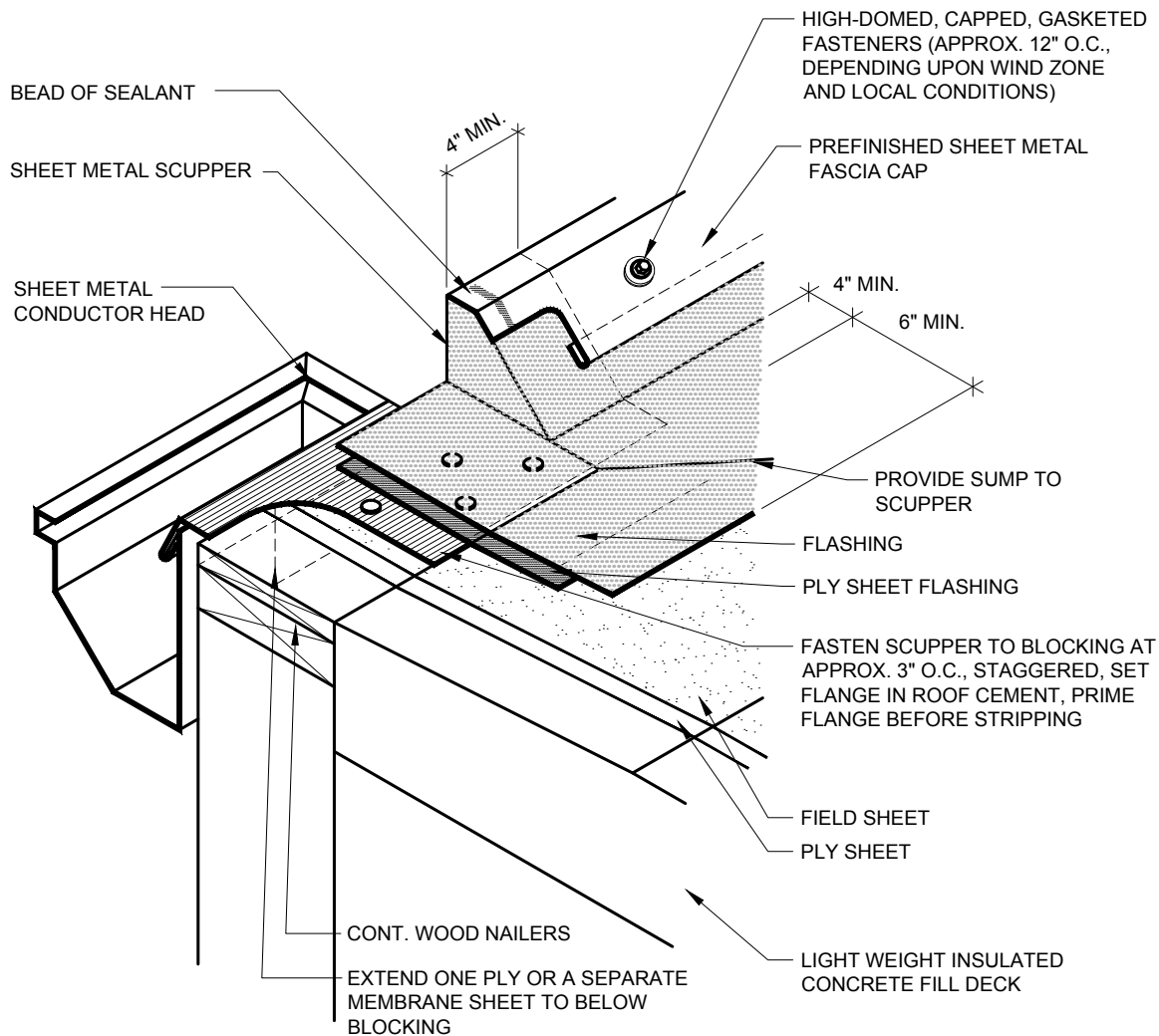
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

DRAWN BY: CB



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.02A

DETAIL NAME: 2 PLY MOD BIT - THROUGH EDGE SCUPPER - ALTERNATE

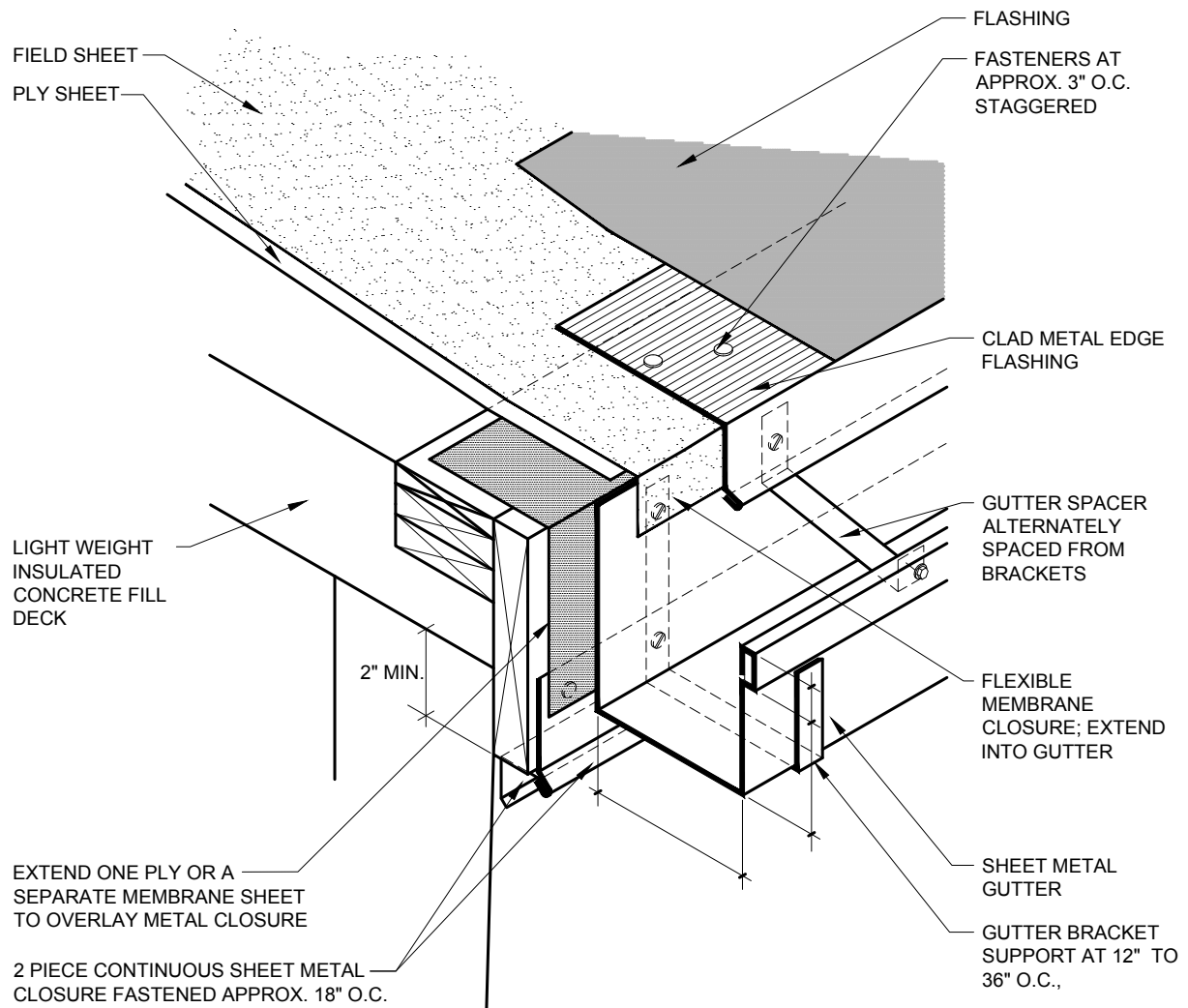
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

DRAWN BY: CB



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.03A

DETAIL NAME: 2 PLY MOD BIT - METAL EDGE GUTTER - ALTERNATE

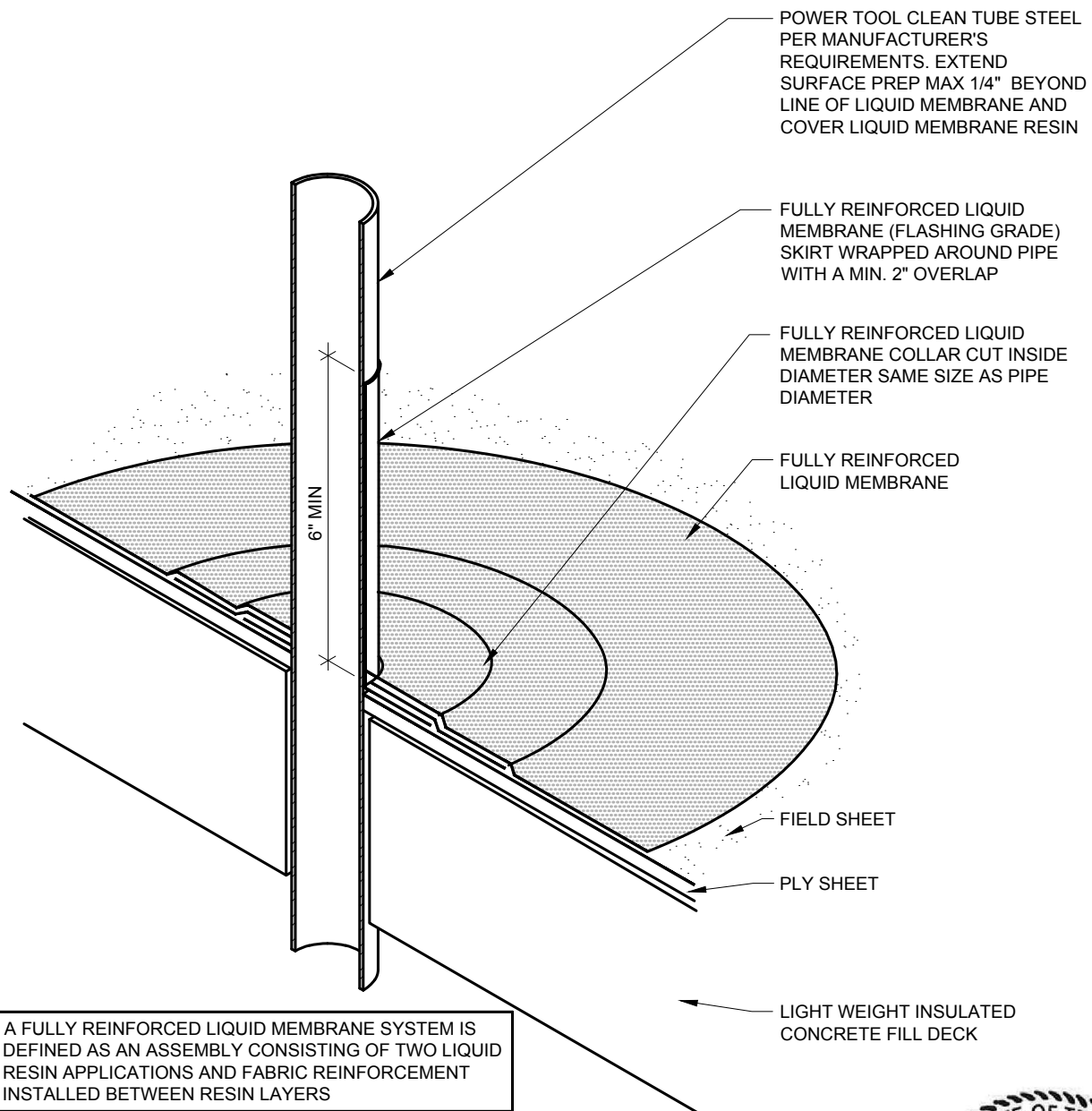
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

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03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.04A

DETAIL NAME: 2 PLY MOD BIT - LIQUID APPLIED FLASHING - ALTERNATE

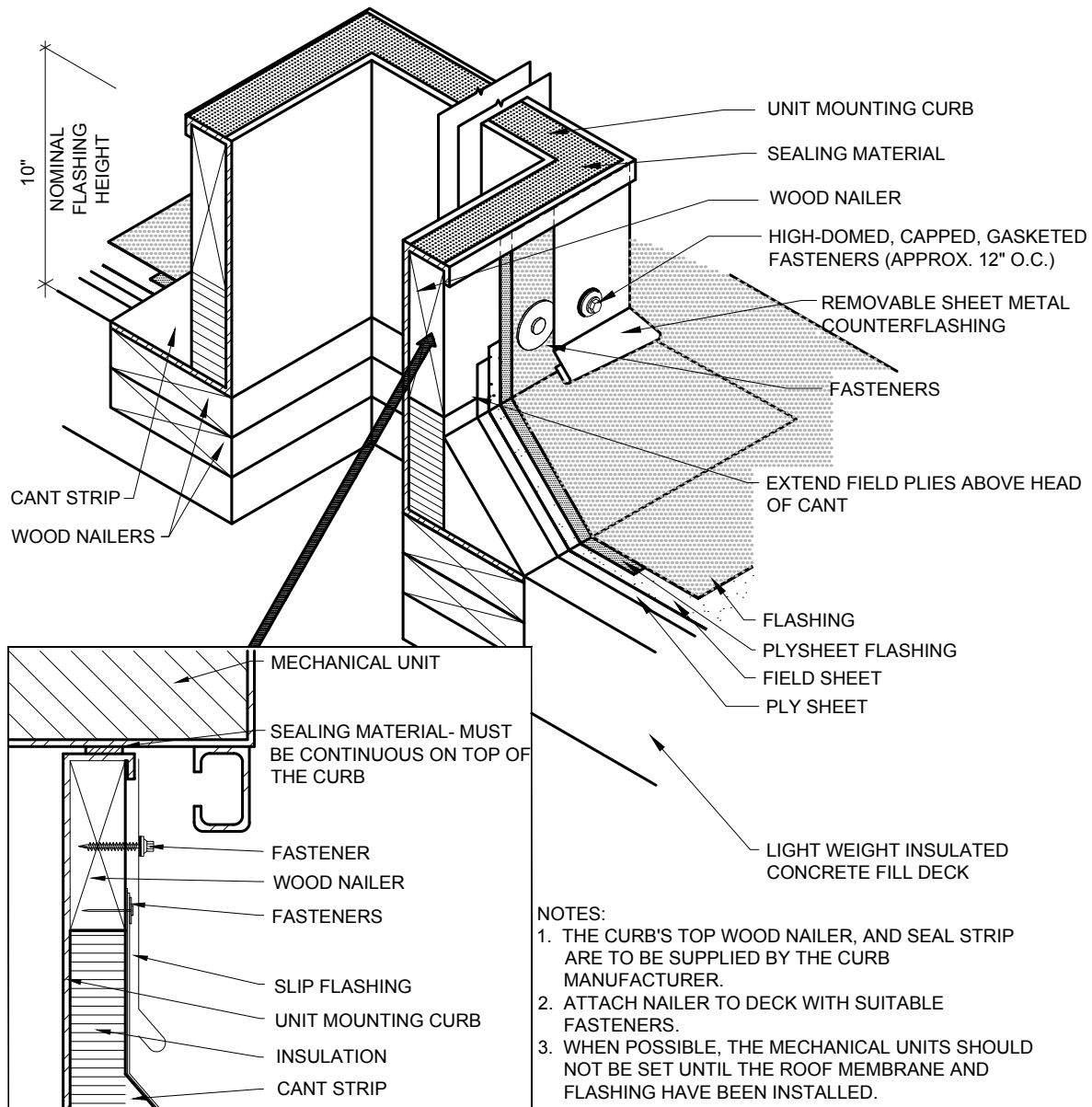
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

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NOTES:

1. THE CURB'S TOP WOOD NAILER, AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.
2. ATTACH NAILER TO DECK WITH SUITABLE FASTENERS.
3. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.05A

DETAIL NAME: 2 PLY MOD BIT - MECHANICAL CURB - ALTERNATE

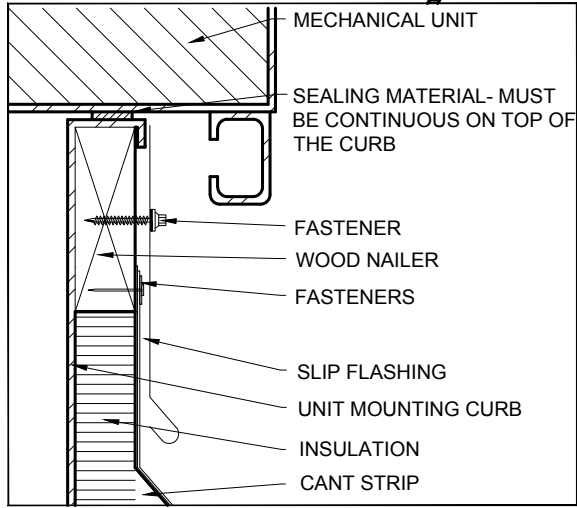
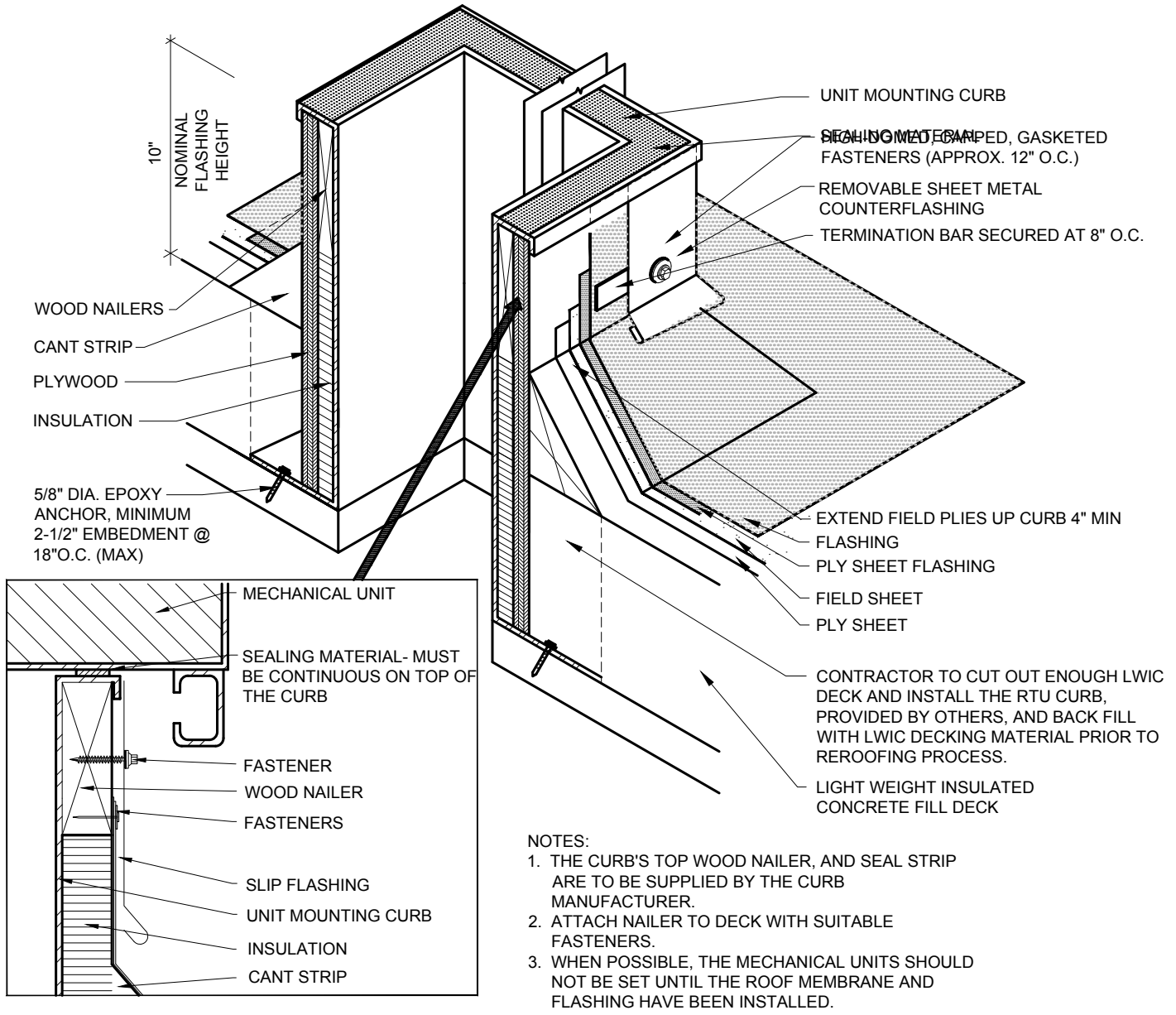
PROJECT NO: 21-1185-42

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DATE: 03/07/2022

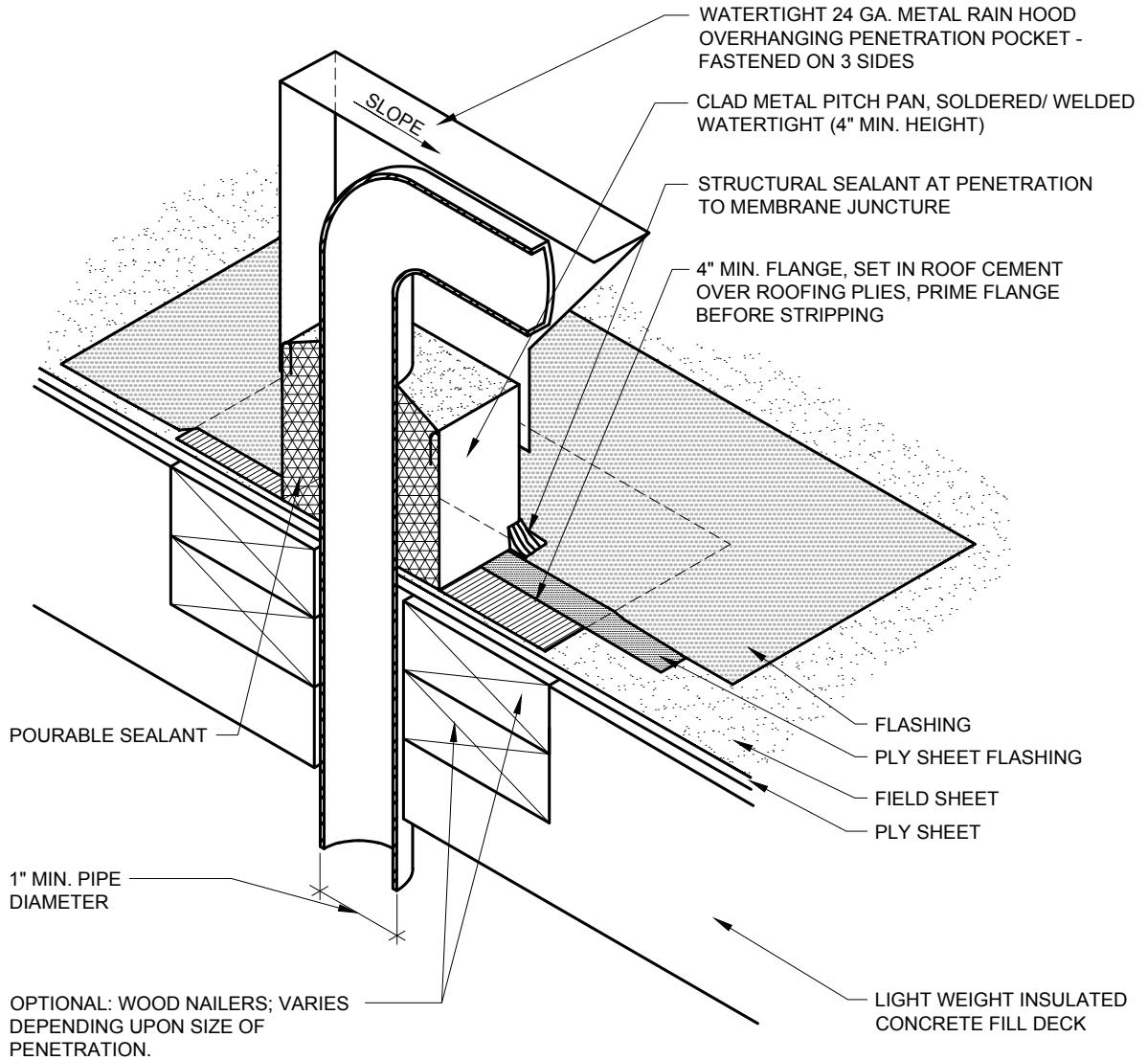
DRAWN BY: CB



03/07/2022



PROJECT FOR:FORT BEND COUNTY JANE LONG 500 LIBERTY STREET RICHMOND, TEXAS 77469			R2.06A
DETAIL NAME: 2 PLY MOD BIT - RTU CURB - ALTERNATE			
PROJECT NO: 21-1185-42		100% CONSTRUCTION DOCUMENTS	
SCALE : NOT TO SCALE	DATE: 03/07/2022	DRAWN BY: CB	



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.07A

DETAIL NAME: 2 PLY MOD BIT - GOOSE NECK PITCH PAN - ALTERNATE

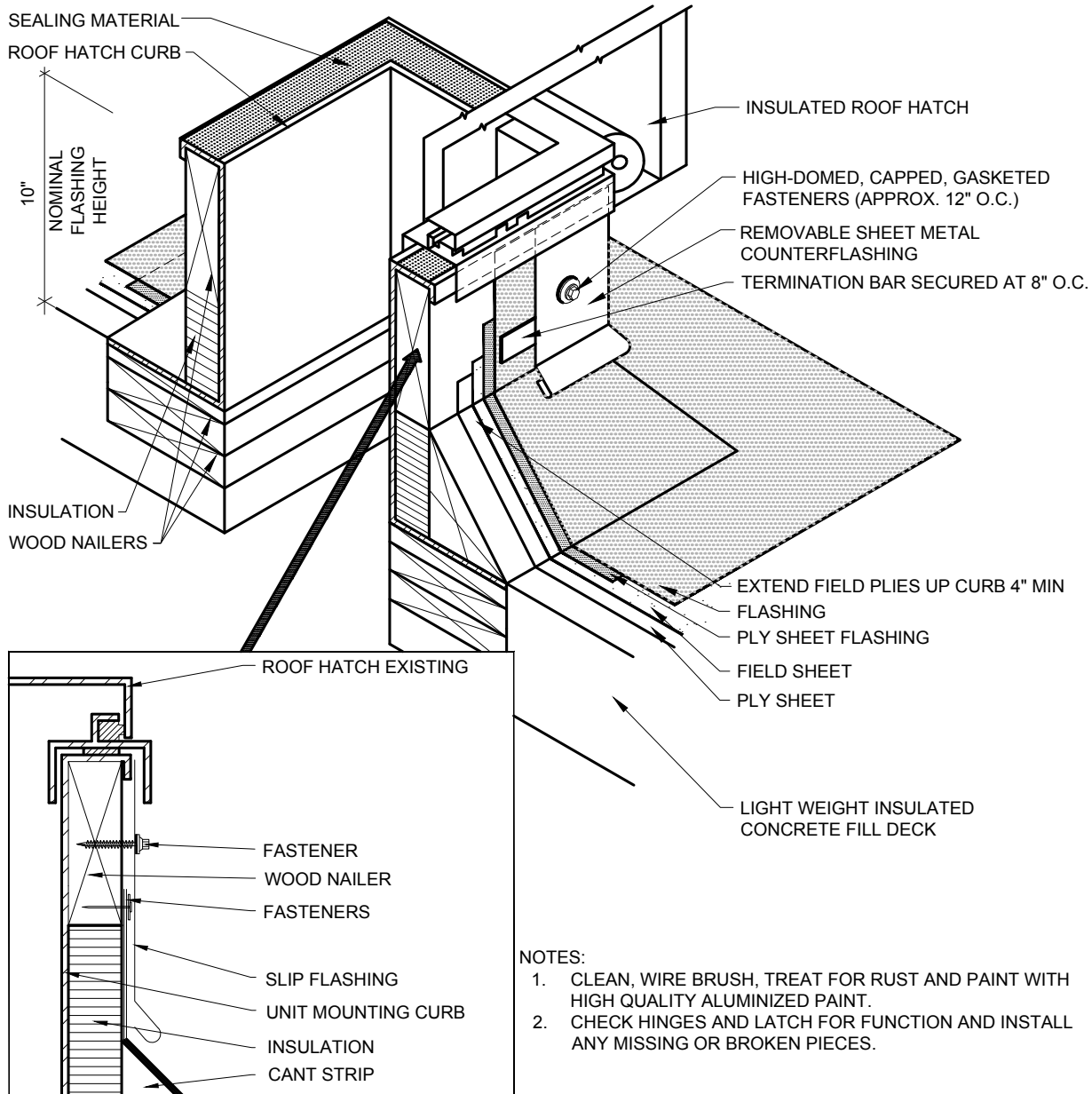
PROJECT NO: 21-1185-42

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SCALE : NOT TO SCALE

DATE: 03/07/2022

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03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.08A

DETAIL NAME: 2 PLY MOD BIT - ROOF HATCH - ALTERNATE

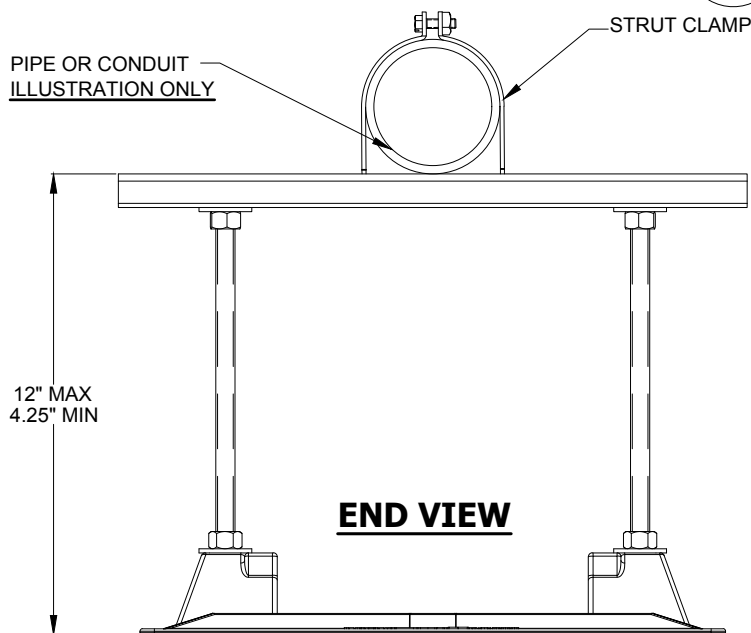
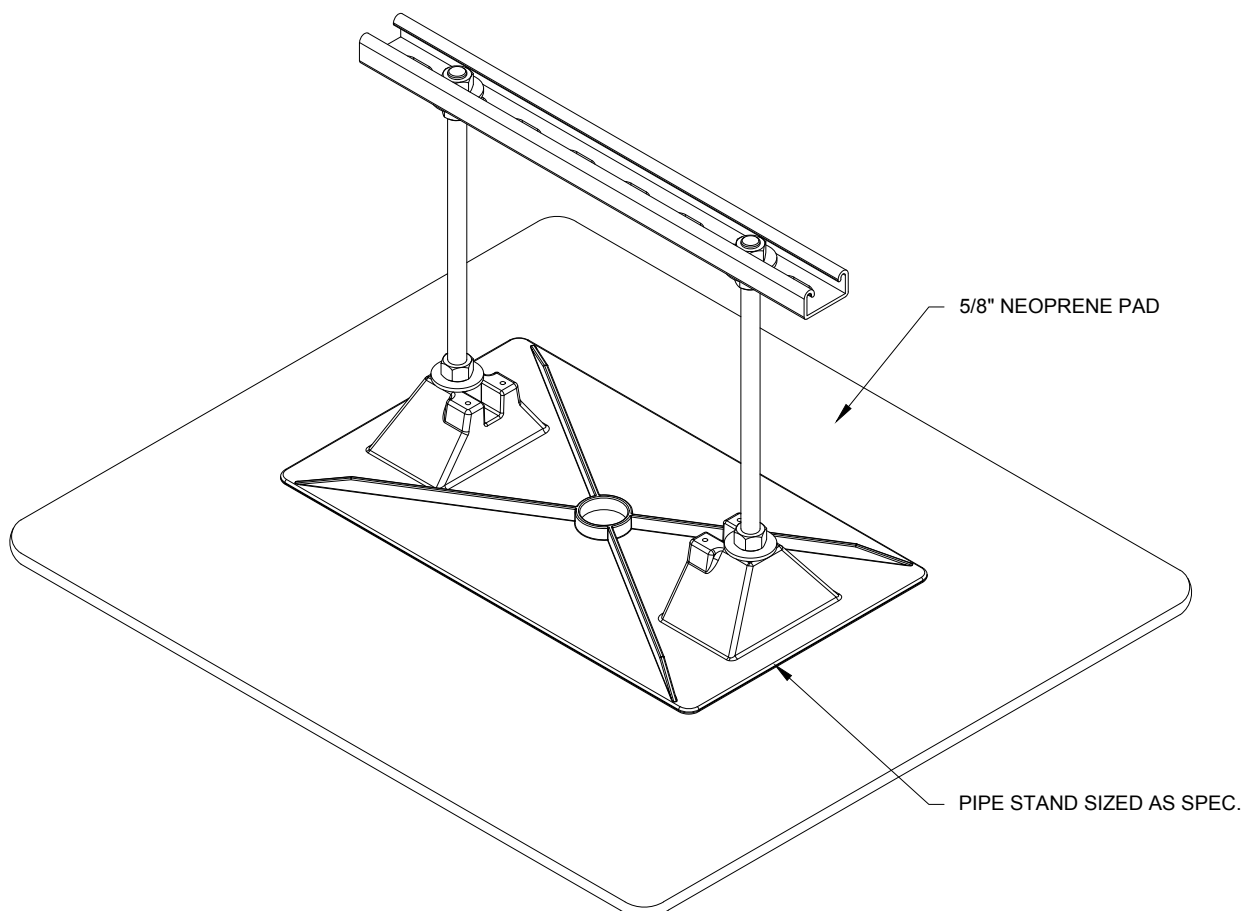
PROJECT NO: 21-1185-42

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SCALE : NOT TO SCALE

DATE: 03/07/2022

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NOTES:

1. SUPPORT LEG SIZE IS DEPENDANT ON PIPE OR CONDUIT SIZE. MANUFACTURER TO PROVIDE PROPER SIZING BASED ON FIELD CONDITIONS.
2. SET ON SACRIFICIAL SHEET.



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

R2.09A

DETAIL NAME: PIPE SUPPORT WITH CLAMP - ALTERNATE

PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

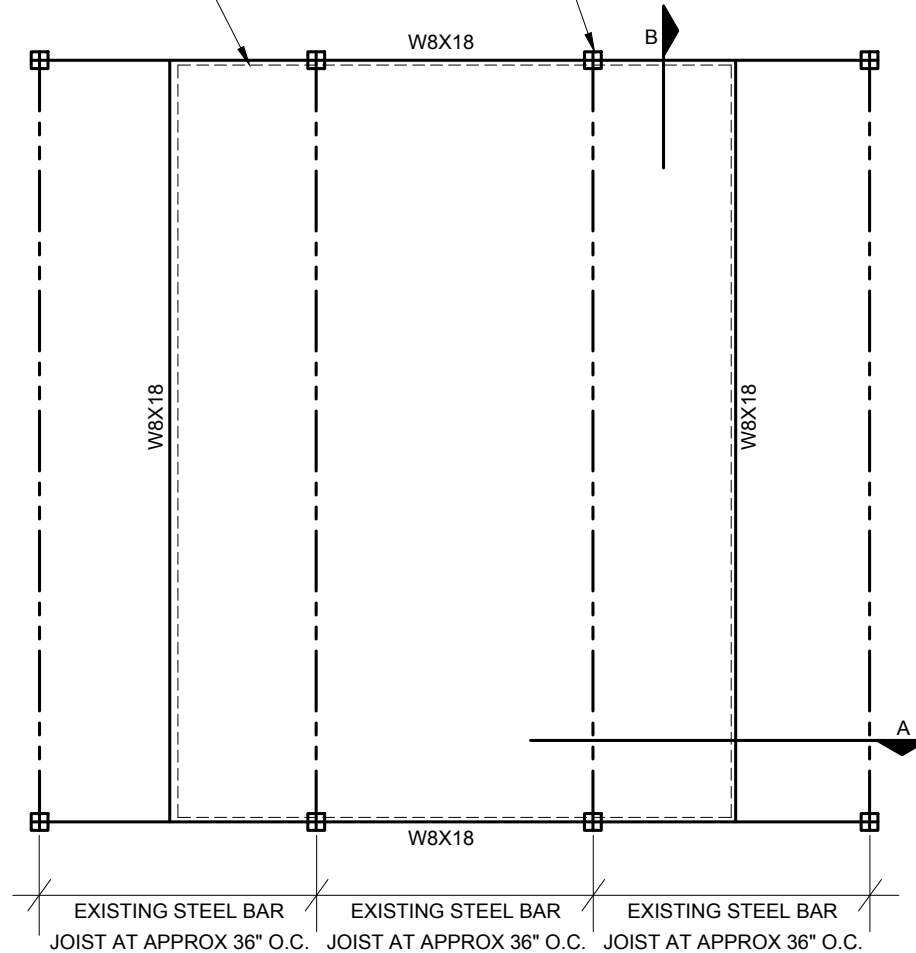
SCALE : NOT TO SCALE

DATE: 03/07/2022

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REFER TO SECTION C FOR BASE PLATE DETAIL. USE BASE PLATE AT EACH W8 BEARING OVER EXISTING STEEL JOIST TYP.

MECHANICAL CURB OUTLINE



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

RS2.01

DETAIL NAME: RTU STRUCTURAL BRACING

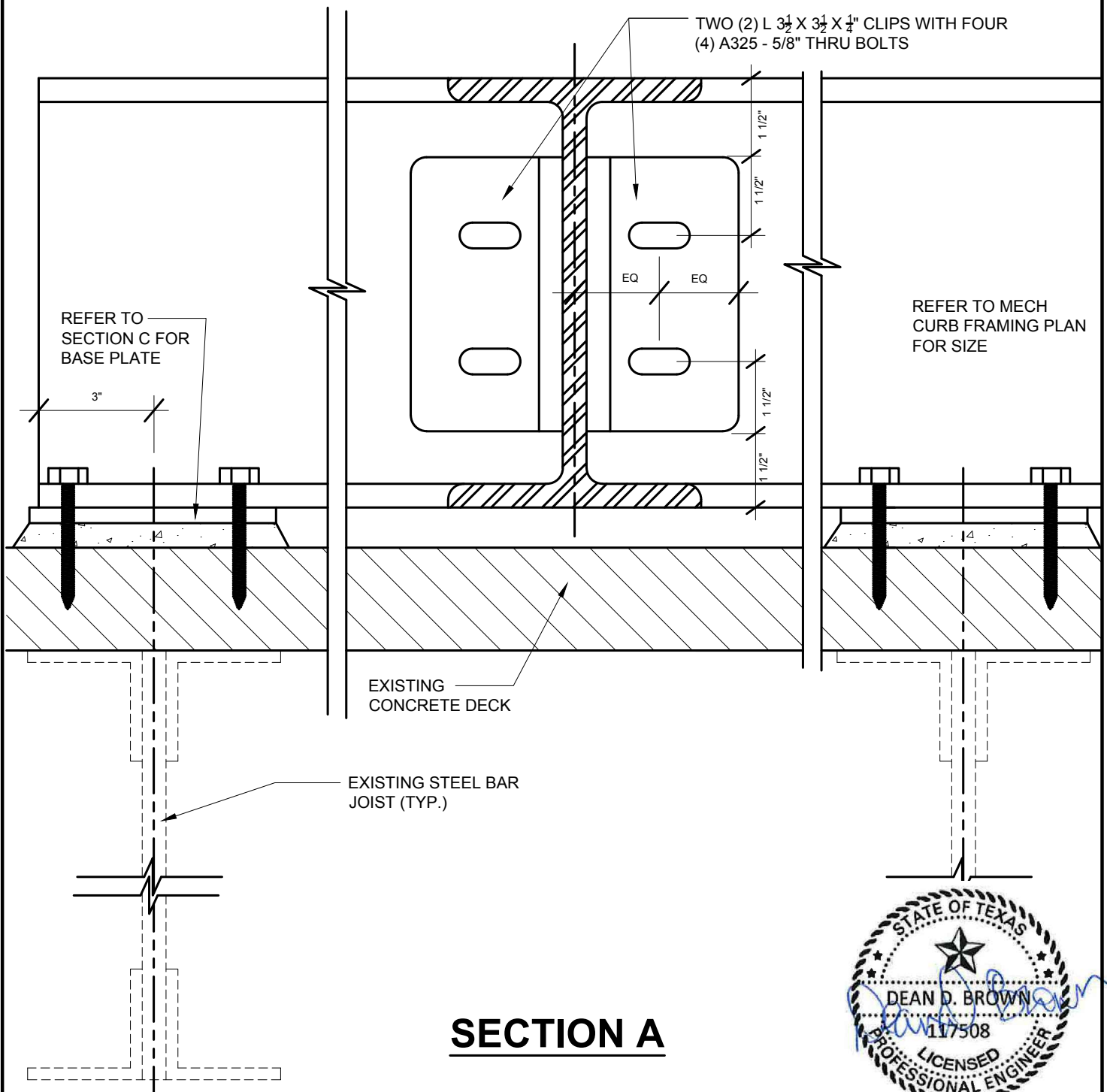
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

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DRAWN BY: CB



SECTION A



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

RS2.02

DETAIL NAME: SECTION RS2.02

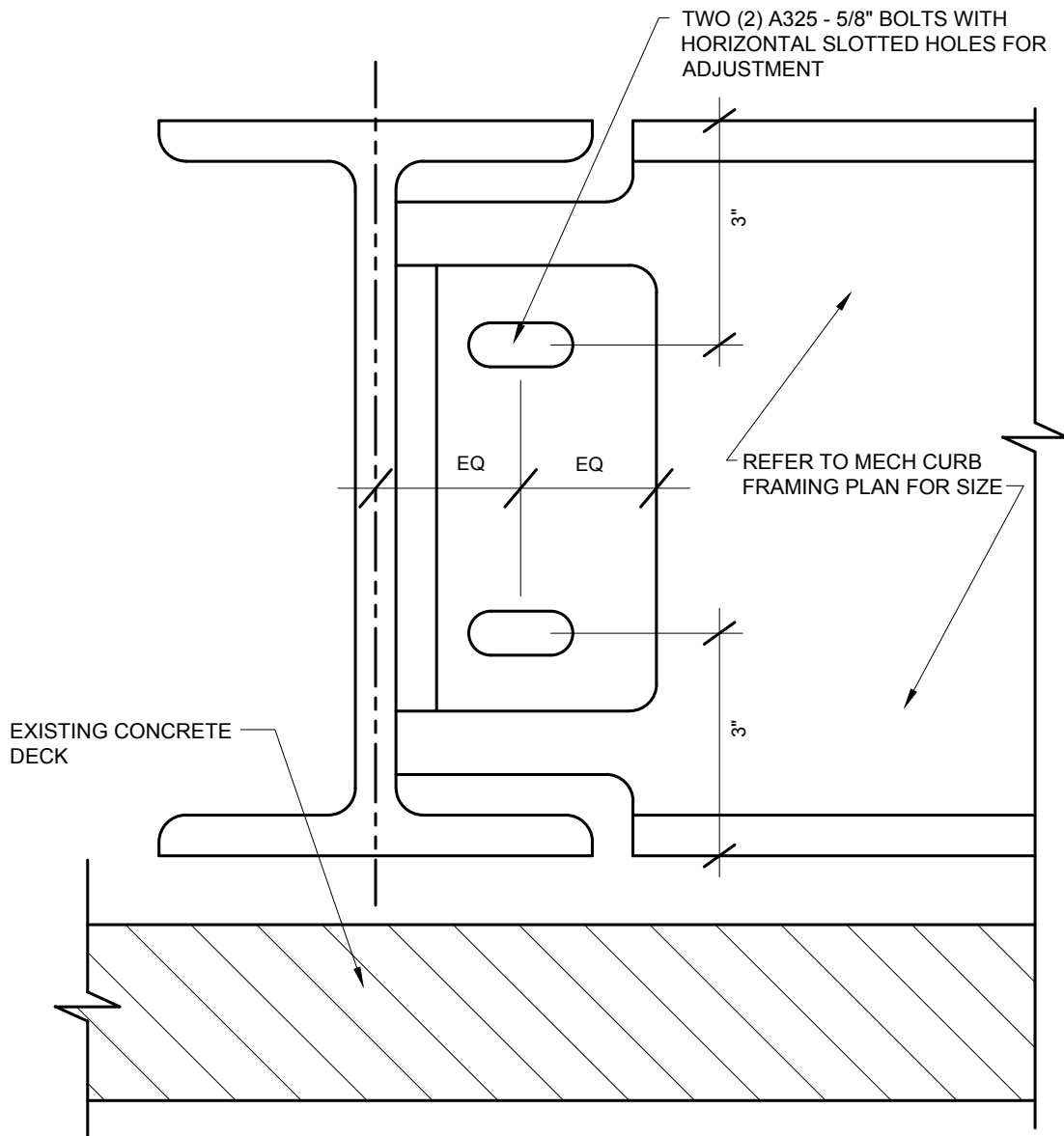
PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

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DRAWN BY: CB



SECTION B



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

RS2.03

DETAIL NAME: SECTION RS2.03

PROJECT NO: 21-1185-42

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SCALE : NOT TO SCALE

DATE: 03/07/2022

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NEW RTU

NAILER

NEW INSULATED RTU CURB

COVERBOARD AND INSULATION

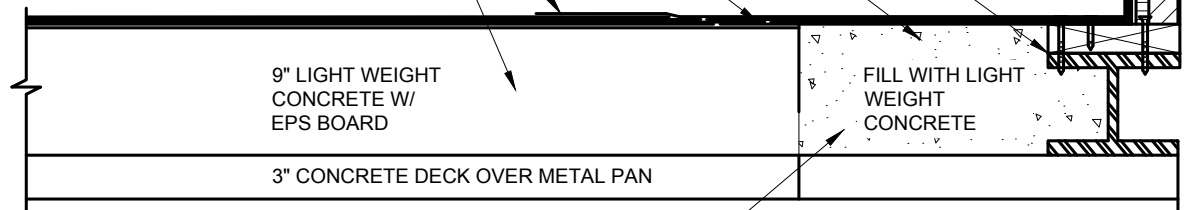
NEW I-BEAM AND NEW BLOCKING

CUT BACK LIGHT WEIGHT
CONCRETE TO INSTALL RTU CURBS

TIE-INTO EXISTING BUILT UP ROOF MEMBRANE

TIE-INTO EXISTING PVC MEMBRANE

EXISTING ROOF SYSTEM TOP REMAIN SPUD
SURFACE ROOF SYSTEM BACK 1'-6" DOWN TO
COVERBOARD



CUT OUT MINIMUM 12" OF LIGHT
WEIGHT CONCRETE FOR NEW CURB
ATTACHMENT AT DECK. INFILL WITH
LIKE MATERIAL.

12" MINIMUM

EXISTING ROOF SYSTEM

NEW ROOF SYSTEM
INSTALATION



03/07/2022



PROJECT FOR: FORT BEND COUNTY
JANE LONG
500 LIBERTY STREET
RICHMOND, TEXAS 77469

RS2.05

DETAIL NAME: SECTION R2.05

PROJECT NO: 21-1185-42

100% CONSTRUCTION DOCUMENTS

SCALE : NOT TO SCALE

DATE: 03/07/2022

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