PRICE CONSULTING, INC.
211 HIGHLAND CROSS DRIVE • SUITE 220 • HOUSTON, TEXAS 77073
PHONE: (281) 209-1724 • FAX: (281) 209-2724 • TOLL FREE (800) 966-6088

PROJECT MANUAL

ROOF REPLACEMENT
FOR
BAPTIST HOSPITALS OF SE TEXAS
BAPTIST HOSPITAL BEAUMONT MAIN CAMPUS
ROOF AREAS ER, S3, S4, N3 & N4
3080 COLLEGE STREET
BEAUMONT, TEXAS

Baptist Hospitals of Southeast Texas

PREPARED BY
PRICE CONSULTING, INC.
211 HIGHLAND CROSS DRIVE, SUITE 220
HOUSTON, TEXAS 77073-1741

TEXAS REGISTERED ENGINEERING FIRM #F-3814

PCI PROJECT NO. 12071.22.01
NOVEMBER 18, 2022

STATE OF TEXAS
KARL A. SCHAACK
70234
REGISTERED
PROFESSIONAL ENGINEER

TX PE Firm F-3814
11/18/22

DOCUMENT 00 01 02

PROJECT DIRECTORY

PROJECT:

Roof Replacement
Baptist Hospital of SE Texas
Baptist Hospital Beaumont Main Campus
Roof Areas ER, S3, S4, N3 & N4
3080 College Street
Beaumont, Texas

OWNER:

Baptist Hospital of SE Texas
3080 College Street
Beaumont, Texas 77701

Mr. Jeromy Jenkins
jeromy.jenkins@bhset.net

ARCHITECT:

Architectural Alliance, Inc.
350 Pine Street, Suite 720
Beaumont, TX 77701
Contact: Mr. Ronnie Jones, AIA RID
Phone: (409) 866.7196
Cell: (409) 656.6307
Email: rjones@architect-aia.com

ENGINEER/CONSULTANT:

Price Consulting, Inc.
211 Highland Cross Drive, Suite 220
Houston, Texas 77073
Contact: Mr. Karl Schaack, P.E., RRC
Phone: (281) 209-1724
Cell: (281) 827-9250
Email: kschaack@priceconsulting.com

END OF PROJECT DIRECTORY

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END OF LIST OF DRAWING SHEETS

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INVITATION FOR PROPOSALS

SEALED PROPOSALS:

A. Baptist Hospital of SE Texas, hereafter known as Owner, is requesting Proposals for roof replacement at the Beaumont Campus – Areas “ER”, “N3”, “N4”, “S3”, and “S4” located at 3080 College Street in Beaumont, Texas.

B. Proposals must be submitted via email and received by the Baptist Hospitals of SE Texas, Materials Management Office, 3080 College Street in Beaumont; Attention: Mr. Roy Bush; roy.bush@bhset.net;, by 2:00 p.m. prevailing time, on December 8, 2022. Transmit a copy of the proposal on the same date and same time to the office of Price Consulting, Inc., 211 Highland Cross Drive, Suite 220, Houston, Texas 77073, Attention: Mr. Karl Schaack.

PRE-PROPOSAL MEETING:

A. A Pre-Proposal Meeting will be held on November 29, 2022 at 10:00 a.m., in Engineering Office at Baptist Hospital, 3080 College Street in Beaumont, Texas. Proposers are required to attend the Pre-Proposal Meeting as a condition of submitting a Proposal.

B. Questions concerning the specifications, specified work, and/or Pre-Proposal Meeting should be directed to Mr. Karl Schaack, Price Consulting, Inc., 211 Highland Cross Drive, Suite 220, Houston, Texas 77073, 281/209-1724.

SUMMARY OF WORK:

A. Baptist Hospital Beaumont Main Campus – Areas “ER”, “N3”, N4”, “S3”, and S4”.
   1. Remove and properly dispose of existing roofing, insulation, and sheet metal flashings, and miscellaneous components down to the existing lightweight insulating concrete substrate.
   2. Install polyisocyanurate insulation board adhered to mechanically attached base sheet or direct to lightweight insulating concrete.
   3. Install tapered polyisocyanurate insulation crickets and secondary cover board insulation set in adhesive.
   4. Install a two-ply modified bitumen roof membrane with smooth surfaced base ply and granule-surfaced cap sheet with reflective surfacing.
   5. Install new two-ply modified bitumen membrane flashings at penetrations, curbs, parapet walls, and risewalls.
   6. Install new sheet metal flashings at walls, curbs, and penetrations.
   7. Install new sheet metal coping along parapet walls.
   8. Raise, lower, or modify utility lines, piping, equipment, or other items which affect the installation of the new roof system.
   9. Raise curbs, equipment, etc., as necessary to achieve a minimum flashing height of 8-inches (200mm) above the finished roof.
   10. Install new supports for roof-top piping and designated roof-top equipment.

11. Install new through-wall flashings at roof-top masonry rise walls.
12. Water test existing roof drains, clean/paint clamp rings and strainers, and secure with stainless steel hardware.
13. Install walk pads at roof access and around roof-top equipment.
14. Remove and re-install lightning protection system.
15. Provide specified manufacturer and contractor warranties.

END OF INVITATION FOR PROPOSALS

DOCUMENT 00 21 13

INSTRUCTIONS TO PROPOSERS

PART ONE - GENERAL

1.01 DEFINITIONS:

A. Proposal Documents include the Invitation for Proposal, Instructions to Proposers, the Proposal Form, other sample proposal and contract forms, and the proposed Contract Documents, including any Addenda issued prior to receipt of Proposals. The Contract Documents proposed for the Work consist of the Contract for Construction (Agreement Between Owner and Contractor, General Conditions of the Contract, and Supplementary Conditions of the Contract), the Drawings, the Specifications, and Addenda issued prior to and modifications issued after execution of the Contract.

B. Definitions set forth in the General Conditions of the Contract for Construction, or in other Contract Documents, are applicable to the Proposal Documents.

C. Addenda are written or graphic instruments issued by the Consultant prior to the execution of the Contract which modify or interpret the Proposal Documents by addition, deletion, clarification, or correction.

D. A Proposal is a complete and properly signed proposal to do the Work or designated portion thereof for the sums stipulated therein, submitted in accordance with the Proposal Documents.

E. The Base Proposal is the sum stated in the Proposal for which the Proposer offers to perform the Work described in the Proposal Documents as the Base Proposal, to which work may be added or from which work may be deleted for sums stated in Alternate Proposals.

F. An Alternate Proposal (or Alternate) is an amount stated in the Proposal to be added or deducted from the amount of the Base Proposal if the corresponding change in the Work, as described in the Proposal Documents, is accepted.

G. A Unit Price is an amount stated in the Proposal as a price per unit of measurement for materials or services as described in the Proposal Documents or in the proposed Contract Documents.

H. A Proposer is a person or entity who submits a Proposal.

I. A Sub-proposer is a person or entity who submits a Proposal to a Proposer for materials or labor for a portion of the Work.

1.02 PROPOSAL PROCEDURES:

A. Prepare Proposals in accordance with these Instructions to Proposers.

B. Each Proposer shall submit his Proposal on the exact copy of the attached Proposal Form. Blank spaces on the Form shall be filled out fully. Numbers shall be stated both in writing and in figures; signatures shall be in long hand; the completed Form shall be without interlineation, alteration, or erasures. If the Proposer is a Corporation, the Corporate Seal shall be affixed or impressed.

C. The Proposal Form shall include the following Proposal items:
   1. Individual proposed prices for the Work as detailed and described in the Proposal Documents as respective Base Proposals.
   2. Acknowledgment and number of Addenda (Supplements).
   3. Number of calendar days to complete project or date required by Owner.
   4. Additional price if Performance and Payment Bonds required.
   5. Procurement timeframes.
   6. Contingencies.
   7. Unit Prices.

D. A Proposal is invalid if it has not been deposited at the designated location prior to the time and date for receipt of Proposals indicated in the Advertisement for Proposal or prior to any extension thereof issued to the Proposers.

E. Proposals shall not contain any recapitulation of the Work to be done. No oral or telephone proposals or modifications will be considered.

F. The Proposer shall make no additional stipulations on the Proposal Form nor limit or qualify his Proposal in any other manner. Proposals so qualified will be subject to disqualification.

G. Written instruction only will be binding and the Owner will not be responsible for any oral, telegraphic, or telephonic instructions.

H. Addenda issued during the time for proposing shall be covered in the proposal, and in closing the Contract they shall become a part of it.

I. Contractor shall field verify necessary dimensions and conditions to prepare and submit responsive Proposal in compliance with the Contract requirements. Any discrepancies found between the Drawings and Specifications and site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Owner's Representative, who shall promptly correct such error or omission in writing. Any work by the Contractor after his discovery of such discrepancies, errors, or omissions shall be performed at the Contractor's risk.

J. The names of subcontractors and material suppliers proposed to be employed shall be submitted for approval by the Owner before they are employed, and such subcontractors and material suppliers must be concerns known to perform work of a high standard in their respective trades. If the Owner has reasonable objection to any such proposed person or entity and notifies the Proposer in writing of such objection, the Proposer shall provide an acceptable substitute person or entity.

1.03 QUALIFICATION OF PROPOSERS:

A. Proposer shall submit to the Owner a properly executed Contractor's Qualification Statement.

B. Proposers may be disqualified and their Proposals not considered for any of the following specific reasons:
   1. Reason for believing collusion exists among Proposers.
   2. The Proposer being interested in any litigation against the Owner.
   3. The Proposer being in arrears on any existing contract or having defaulted on a previous contract.

4. Lack of competency as revealed by the financial statement, experience, equipment, questionnaires, or qualification statement.
5. Uncompleted work which, in the judgment of the Owner, will prevent or hinder the prompt completion of additional work, if awarded.

1.04 PROPOSER'S REPRESENTATION:

A. Each Proposer by making his Proposal represents that he has read and understands the Proposal Documents and that his Proposal is made in accordance therewith.

B. Each Proposer by making his Proposal represents that he has visited the site, has familiarized himself with the local and site conditions under which the Work is to be performed, has correlated his observations, and has made provisions for such requirements in submission of Proposal with the requirements of the proposed Contract Documents.

C. Each Proposer by making his Proposal represents that his Proposal is based upon the materials, systems, and equipment required by the Proposal Documents without exception.

D. During Proposal, written requests for substitutions will be considered, providing such requests are received by the Consultant at least seven days prior to date for receipt of Proposals. Requests for substitutions shall be in accordance with requirements of the Substitution Request Form.
   1. Where reference is made in the Specifications to manufacturers' specifications or standards of any technical society, governmental agency, or similar association, it is understood and agreed that such specifications or standards are a part of the Specifications as though fully repeated therein.
   2. In interpreting any specification or standard referred to, terms such as "Purchaser", "Owner", and the like shall be understood to mean the person or the organization designated as the Owner in the Contract, acting by and through its duly constituted legislative body. Terms such as "Supplier" and the like shall mean the Contractor.
   3. It is understood and agreed that the use or application of any specification or standard referred to shall not necessarily be restricted to that which may be named in the specification or standard, but shall be used or applied as set forth in these Specifications.
   4. The Contractor shall secure copies of standards and specifications referred to herein. It is assumed that a contractor proposing this Work shall be qualified and experienced in the type of work involved and will have access to the specifications or standards referred to.

1.05 EXAMINATION OF EXISTING CONDITIONS:

A. Proposers shall visit existing building and thoroughly familiarize themselves with existing conditions.

B. Proposers shall examine existing building and daily operations and ascertain, by any reasonable means, conditions that affect the performance of the Work and make such provisions in Proposal.

C. The proposed Contract Documents have been prepared on the basis of available information of the building and are intended to present an essentially accurate indication of existing conditions. This, however, shall not relieve the Proposer of the responsibility of fully informing himself as to the existing conditions.
D. Proposers shall verify quantities, types, condition, sizes, and locations of existing material being replaced by new material.
E. Proposers shall use existing building to determine quantities of materials required and to determine scope of work.

1.06 PROPOSAL BOND:

A. A "Proposal Bond" in the amount of 5% of Gross Bid Amounts is required for this project.

1.07 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND:

A. With the execution and delivery of the Contract, the successful Proposer may be required to furnish and file with the Owner, in the amounts herein required, the surety bonds listed below covering the faithful performance of the Contract and the payment of obligations arising thereunder. Only bonding companies approved and listed in the United States Treasury Department will be approved. The Proposer shall state in his Proposal the alternate addition to the Contract price in case the Owner should decide that such bonds are required.
    1. Performance Bond: A good and sufficient construction or performance bond in an amount equal to 100 percent (100%) of approximate total amount of the Contract, as evidenced by the proposal tabulation or otherwise, guaranteeing the full and faithful execution of the Work and performance of the Contract in accordance with the Contract Documents. This bond shall guarantee the repair and maintenance of defects due to faulty materials or workmanship that appear within a period of one year from date of completion and acceptance by the Owner.
    2. Payment Bond: A good and sufficient bond in an amount equal to 100 percent (100%) of the approximate total amount of the Contract, as evidenced by the proposal tabulation or otherwise, guaranteeing the full and proper protection of claimants supplying labor and materials in the prosecution of the work provided for in said Contract and for the use of each such claimant.
B. Owner will not accept sureties from Proposers who are now in default or delinquent on any bonds or who are interested in any litigation against the Owner. Bonds shall be executed by not less than one corporate surety authorized to do business in the State of Texas and listed on the United States Treasury Department list of companies holding Certificates of Authority as acceptable sureties on Federal Bonds. Each bond shall be executed by the Proposer and the Owner. Should any surety on the Contract be determined unsatisfactory at any time by the Owner, notice will be given to the Contractor to that effect, and the Contractor shall immediately provide a new surety satisfactory to the Owner. The Contract shall not be operative nor will any payments be due or paid until approval of the bond has been made by the Owner.

C. The Proposer shall require the Attorney-in-Fact, who executes the required bonds on behalf of the Surety, to affix thereto a certified and current copy of his Power of Attorney, indicating the monetary limit of such power.

1.08 DISCREPANCIES AND AMBIGUITIES:

A. A Proposer finding discrepancies or omissions from the Proposal Documents or who is in doubt as to their exact meaning, shall at once notify the Consultant who will send written instructions to Proposers.

1.09 AWARD OF CONTRACT:

A. After Proposals are opened, the Proposals will be tabulated for comparison on the basis of the Proposal prices and quantities shown in the proposal and information presented in the Qualification Statement. The Owner reserves the right to withhold the award of the Contract for a period of thirty days from date of opening Proposals and no award will be made until after investigations are made as to the responsibilities of the low Proposers. Until final award of the Contract, the Owner reserves the right to reject any or all Proposals or to proceed to do the Work otherwise in the best interest of the Owner. The Owner does not obligate himself to accept the lowest or any other Proposal.

B. Owner shall have the right to accept Alternates in any order or combination and to determine the low Proposer on the basis of the sum of the Base Proposal and the Alternates accepted, which produce a total amount acceptable to the Owner.

C. The successful low Proposer, upon notification of acceptance of his Proposal, shall provide to the Owner the required insurance policies within ten working days to prevent delays in awarding the Contract.

1.10 EXECUTION OF CONTRACT:

A. The person or persons, partnership, company, firm, association, or corporation to whom a Contract is awarded shall sign the necessary agreements entering into the required Contract with the Owner. No Contract shall be binding on the Owner until it has been executed by the Owner or his duly authorized representative and delivered to the Contractor.

1.11 LIQUIDATED DAMAGES:

A. Contractor and the Contractor's Surety, if any, shall be liable for and shall pay the Owner the sums for liquidated damages as stipulated for each calendar day of delay until the Work is substantially complete, noting allowance for inclement weather.

B. Each Proposer must submit his Proposal with the distinct understanding that, in case of its acceptance, time for completion shall be considered the essence of the Contract; and that the expense entailed on the Owner by delayed completion of the work covered by this Contract within the time stipulated therein shall entitle the Owner to a fixed sum of $500.00 per day as liquidated damages for each and every day of delay not caused by the Owner, provided, however, that the collection of any or all of the said money may be waived at the discretion of the Owner.

1.12 PROPOSAL DOCUMENTS:

A. Proposer shall return Proposal Form with all blanks filled in and properly executed. See Article 1.02 Proposal Procedures in these Instructions to Proposers.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF INSTRUCTIONS TO PROPOSERS

DOCUMENT 00 31 19

EXISTING CONDITION INFORMATION

PART ONE - GENERAL

1.01 GENERAL:

A. The following data is presented for informative purposes only. The roof construction components listed were encountered at core locations performed by Price Consulting, Inc. personnel and may not be representative of the entire area. Contractor is responsible for verifying all field conditions that may impact both the proposal and/or the proposed manufacturer's requirements.

1.02 ROOF CONSTRUCTION SUMMARY:

A. The roof construction observed at core locations consists of the following:
   1. Areas "N3" & "N4": Granule-surfaced modified bitumen cap sheet, base sheet, tapered lightweight insulating concrete fill with stair-stepped EPS board over metal form deck.
   2. Areas "ER", "S3" & "S4": EPDM single ply membrane; tapered lightweight insulating concrete fill with stair-stepped EPS board over metal form deck.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF EXISTING CONDITION INFORMATION

BHSET/BAPTIST HOSPITAL
BEAUMONT, TEXAS

1. AREA "ER": VIEW OF ROOF CORE - EPDM SINGLE PLY MEMBRANE, LWIC, EPS BOARD, METAL FORM DECK

6. AREA "ER": VIEW OF ROOF CORE - EPDM SINGLE PLY MEMBRANE, LWIC, EPS BOARD, METAL FORM DECK

3. AREA "N3": VIEW OF ROOF CORE - MODIFIED BITUMEN MEMBRANE, BASE SHEET, LWIC, EPS BOARD, METAL FORM DECK

4. AREA "N4": VIEW OF ROOF CORE - MODIFIED BITUMEN MEMBRANE, BASE SHEET, LWIC, EPS BOARD, METAL FORM DECK

5. AREA "S3": VIEW OF ROOF CORE - EPDM SINGLE PLY MEMBRANE, LWIC, EPS BOARD, METAL FORM DECK

6. AREA "S4": VIEW OF ROOF CORE - EPDM SINGLE PLY MEMBRANE, LWIC, EPS BOARD, METAL FORM DECK

DOCUMENT 00 41 13

PROPOSAL FORM

PROJECT:	**Baptist Hospitals of SE Texas** **Baptist Hospital Beaumont Main Campus** **3080 College Street** **Beaumont, Texas**	**PROJECT NO: 12071.22.01** **DATE: _____**
PROPOSAL TO:	**Baptist Hospitals of SE Texas** **3080 College Street** **Beaumont, Texas 77701** **Attn Mr. Roy Bush**	**PROPOSAL FROM:** **_____** **_____** **_____**

The undersigned Proposer declares that he has familiarized himself with the site, dimensions, and conditions affecting the work. After examining the Instructions to Proposer, General Conditions, Supplementary/Special Conditions, Specifications, and Drawings, Proposer accepts them as sufficient for the purpose and agrees that he will contract with the Baptist Hospitals of SE Texas to furnish labor, materials, and any incidentals necessary to do the Work specified within these documents and indicated on the Drawings for the following amounts:

BASE PROPOSAL NO. 1: Perform the roof replacement work as specified herein including labor, materials, and all incidentals on Area "N3" for the lump sum price of:

_____
_____($_____)

Add the sum of _____ Dollars ($_____)
for Performance and Payment Bonds of the total work for Base Proposal No. 1.

BASE PROPOSAL NO. 2: Perform the roof replacement work as specified herein including labor, materials, and all incidentals on Area "N4" for the lump sum price of:

_____
_____($_____)

Add the sum of _____ Dollars ($_____)
for Performance and Payment Bonds of the total work for Base Proposal No. 2.

BASE PROPOSAL NO. 3: Perform the roof replacement work as specified herein including labor, materials, and all incidentals on Area "ER" for the lump sum price of:

_____
_____($_____)

Add the sum of _____ Dollars ($_____)
for Performance and Payment Bonds of the total work for Base Proposal No. 3.

BASE PROPOSAL NO. 4: Perform the roof replacement work as specified herein including labor, materials, and all incidentals on Area "S3" for the lump sum price of:

_____
_____($_____)

Add the sum of _____ Dollars ($_____)
for Performance and Payment Bonds of the total work for Base Proposal No. 4.

BASE PROPOSAL NO. 5: Perform the roof replacement work as specified herein including labor, materials, and all incidentals on Area "S4" for the lump sum price of:

_____
_____($_____)

Add the sum of _____ Dollars ($_____)
for Performance and Payment Bonds of the total work for Base Proposal No. 5.

TOTAL OF BASE PROPOSALS NOS. 1 - 5: Perform the roof replacement work as specified herein including labor, materials, and all incidentals on Areas "ER", "N3", "N4", "S3", and "S4" for the lump sum price of:

_____
_____($_____)

Add the sum of _____ Dollars ($_____)
for Performance and Payment Bonds of the total work for Base Proposal Nos. 1 - 5.

CONTINGENCY: Contractor proposes the following monetary contingency to cover increases in material costs from time of order placement to delivery to site/contractor (Contractor to provide documentation of such increase):

_____
_____($_____)

PROJECT COMPLETION: The Contractor anticipates the work specified to be completed within the noted timeframe after Notice to Proceed as follows:

_____ Calendar Days: Base Proposal No. 1
_____ Calendar Days: Base Proposal No. 2
_____ Calendar Days: Base Proposal No. 3
_____ Calendar Days: Base Proposal No. 4
_____ Calendar Days: Base Proposal No. 5

MATERIAL PROCUREMENT/DELIVERY: The Contractor anticipates the specified roofing materials to be delivered after Contract Award as follows:

within _____ Calendar Days: Base Proposal No. 1
within _____ Calendar Days: Base Proposal No. 2
within _____ Calendar Days: Base Proposal No. 3
within _____ Calendar Days: Base Proposal No. 4.
within _____ Calendar Days: Base Proposal No. 5.

MATERIAL MANUFACTURER: The undersigned Proposer has based this proposal on the following:

Roofing Manufacturer: _____

UNIT PRICES: It is possible that certain items which require installation and/or replacement may be uncovered during the renovation activities. Please provide the following unit prices for installing and/or replacing noted items to be used to adjust the Contract amount:

1)	Wood Nailers:	
	2 x 4 wood nailer:	$_____ per linear foot
	2 x 6 wood nailer:	$_____ per linear foot
	2 x 8 wood nailer:	$_____ per linear foot
	2 x 12 wood nailer:	$_____ per linear foot
2)	Lightweight Insulating Concrete Repair:	$_____ per square foot
3)	Metal Form Deck Replacement:	$_____ per square foot
4)	Install roof drain insert:	$_____ each
5)	Cast Iron Drain Piping (including all connections, fittings, hangers, and insulation):	$_____ per linear foot
6)	Plywood Sheathing (3/4-inch thick):	$_____ per square foot

Addenda: Acknowledgment is hereby made of receipt of the following addenda:

Addendum No. 1 - Date Received: _____Initial: _____
Addendum No. 2 - Date Received: _____Initial: _____
Addendum No. 3 - Date Received: _____Initial: _____
Addendum No. 4 - Date Received: _____Initial: _____

Yours truly,

_____
Firm Name

_____
Name

_____
Signature

_____
Street Address

_____
City State Zip

(_____)-_____
(Area Code) Telephone Number

END OF PROPOSAL FORM

DOCUMENT 00 52 13

AGREEMENT FORM

The AIA A101 *Standard Form of Agreement Between Owner and Contractor - 2017* hereinafter referred to as the "Agreement" is hereby made part of the Contract Documents.

END OF AGREEMENT FORM

DOCUMENT 00 73 16

INSURANCE REQUIREMENTS

The Insurance Requirements are hereby made part of the Contract Documents and attached hereto.

END OF INSURANCE REQUIREMENTS

AIA® Document A101™ – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the _____day of _____in the year _____
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name and location or address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201™–2017, General Conditions of the Contract for Construction. Article 11 of A201™–2017 contains additional insurance provisions.

THE OWNER:
(Name, legal status and address)

THE CONTRACTOR:
(Name, legal status and address)

TABLE OF ARTICLES

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.

The Owner shall purchase and maintain the insurance selected and described below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

[ ] **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

[ ] **§ A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

[ ] **§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

[ ] **§ A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

[ ] **§ A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

[ ] **§ A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

[ ] **§ A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

[ ] **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach,

including costs of investigating a potential or actual breach of confidential or private information.
(Indicate applicable limits of coverage or other conditions in the fill point below.)

[ ] **§ A.2.5.2 Other Insurance**
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than one million dollars ($ 1,000,000) each occurrence, two million ($ 2,000,000) general aggregate, and two million ($ 2,000,000) aggregate for products-completed operations hazard, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
.2 personal injury and advertising injury;
.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
.4 bodily injury or property damage arising out of completed operations; and

.5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.

.3 Claims for bodily injury other than to employees of the insured.

.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.

.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.

.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.

.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.

.8 Claims related to roofing, if the Work involves roofing.

.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.

.10 Claims related to earth subsidence or movement, where the Work involves such hazards.

.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than ($) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than ($) each accident, ($) each employee, and ($) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.
(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[ ] **§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

[ ] **§ A.3.3.2.2 Railroad Protective Liability Insurance**, with policy limits of not less than ($) per claim and ($) in the aggregate, for Work within fifty (50) feet of railroad property.

[ ] **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than ($) per claim and ($) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

[ ] **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

[ ] **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

[ ] **§ A.3.3.2.6 Other Insurance**
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits

§ A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type	Penal Sum ($0.00)
Payment Bond	100% of Contract Sum
Performance Bond	100% of Contract Sum

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

Exhibit B

2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses

Contractor is required to comply with the following:

1. Remedies on Default. In addition to any and all other rights available according to law, if either party defaults by failing to substantially perform any material provision, term of condition of the Agreement (including without limitation the failure to make a monetary payment when due), the other party may elect to terminate this Agreement if the default is not cured within 30 days after providing written notice to the defaulting party. The notice shall describe with sufficient detail the nature of the default.

2. Termination for Cause and Convenience. Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by Owner; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

3. Equal Employment Opportunity. During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section,

and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

4. Davis Bacon Act and Copeland Anti-Kickback Act.

(1) Contractor. The contractor shall comply with with the Davis-Bacon Act (40 Current as of 1-9-17 4 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction) as well as 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract. (2) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses. Current as of 1-9-17 5 (3) Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

5. Compliance with the Contract Work Hours and Safety Standards Act.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit

any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section."

6. Clean Air Act.

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

(2) The contractor agrees to report each violation to the State of Texas and understands and agrees that the State of Texas will, in turn, report each violation as required to assure notification to the Owner, Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

7. Federal Water Pollution Control Act.

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

(2) The contractor agrees to report each violation to the State of Texas and understands and agrees that the State of Texas will, in turn, report each violation as required to assure notification to the

Owner, Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

8. Debarment and Suspension.

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by the subrecipient. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

9. Byrd Anti-Lobbying Amendment. Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient.

10. Procurement of Recovered Materials.

(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA designated items unless the product cannot be acquired—

(i) Competitively within a timeframe providing for compliance with the contract performance schedule;

(ii) Meeting contract performance requirements; or

(iii) At a reasonable price.

(2) Information about this requirement, along with the list of EPA designate items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensiveprocurement-guideline-cpg-program.

11. Access to Records. The following access to records requirements apply to this contract:

(1) The contractor agrees to provide State of Texas, Owner, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
(3) The contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

12. DHS Seal, Logo, and Flags. The contractor shall not use the Department of Homeland Security seal(s), logos, crests, or reproduction of flags or likenesses of DHD agency officials without specific FEMA pre-approval.

13. Compliance with Federal Law, Regulations, and Executive Orders. This is an acknowledgement that FEMA financial assistance will be used to fund the contract only. The contractor will comply will all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives.

14. No Obligation by Federal Government. The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

15. Program Fraud and False or Fraudulent Statements of Related Acts. The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor's actions pertaining to this contract.

SECTION 01 07 50

DEFINITIONS

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Definitions for construction terminology not otherwise defined in Contract Documents.
B. Definitions for special terminology used for this Project.

1.02 ABANDONED - (NO LONGER NECESSARY OR IN USE):

A. "Remove" items so noted, or later defined, as an all inclusive responsibility within this contract. Pay for all work in connection with removal of these items, including municipal, disposal, utility, and service charges. Dispose of all "Excess".

1.03 ADDITION - (TO ADD TO AND BE INCORPORATED) ALSO TO "ADD":

A. Work supplementary to that indicated to accomplish that which is required by the Contract Documents. To bring to a new condition; to extend, fasten, patch, and match to that which is existing.

1.04 DEFECTIVE - (NOT ACCEPTABLE):

A. Refer to Conditions of the Contract, that which does not conform to the Contract Documents. As it applies to "Salvage", in addition to the above, shall mean "unsuitable".

1.05 EXCESS - (NOT REQUIRED):

A. More quantity than required to conform to the Contract Documents and not desired by the Owner. Debris shall be considered "Excess" and not be used as fill or be buried on this site. Remove "Excess" from the site and legally dispose of. "Excess" "Suitable" "Salvage" shall be property of Contractor unless otherwise specified.

1.06 EXISTING - (PRESENTLY THERE):

A. Also may be noted "original". Present conditions and assumed locations, if known, as of the Date of Contract Documents.

1.07 NEW - (TO BE INCORPORATED) NOT EXISTING:

A. Refer to various specification sections for requirements of Work to be incorporated.

1.08 REINSTALL - (TO INCORPORATE AS WAS ONCE DONE):

A. "Remove" and "salvage" existing from its location, if it does exist. "Restore", "Renovate", or "Remodel" and "Reinstall: in its existing location. Reincorporate and "re-work" the original work to the extent required by the Contract Documents.

B. If the "Existing" item, so indicated, is missing, defective, or unsuitable as "Existing", then "Reconstruct" only that portion with "New" products and incorporate as was original. Syn. Replace.

1.09 RELOCATE - ("REINSTALL" IN A NEW LOCATION):

A. "Reinstall" in a new location as indicated on Drawings.

1.10 REMAIN - (TO LEAVE WHERE IT IS EXISTING):

A. The final location of an item in its "existing" position, however, this shall not mandate the fact that this item will not move during this contract, specifically in order to "Preserve" or "Rework".

1.11 REMOVE - (TO TAKE FROM EXISTING LOCATION):

A. Work required to extract a portion or whole by one or a combination of methods and moved to a new location.
   1. "Abandoned": Remove items by dismantling, excavation, extraction, or demolition, if acceptable.
   2. Salvage: Remove by disassembly. "Relocate".
   3. Products: Where a specific portion of component of an assembly or whole is to be removed, take all precautions to prevent damage, defacement, and displacement to the "existing" to remain (i.e., mortar, bricks, and finishes).

1.12 RENOVATE - (TO REPAIR AND MAKE NEW):

A. The process required to bring an item to a present new standard of condition required by the Contract Documents (e.g., to "rework" "existing" "suitable" "salvage" "products" and perform "new" work and "additions" required). (Syn. rehabilitate, recondition, repair.)

1.13 REPLACE - (TO TAKE THE PLACE OF):

A. "Remove" "existing" unserviceable product and provide "new" product in place of unserviceable product.

1.14 REUSE - (TO USE AS ONCE WAS):

A. The use of "suitable" "salvage" for incorporation or re-incorporation in the Work. "Remove", "Relocate", and "Reinstall" as required for "Reuse".

1.15 SALVAGE - (TO BECOME ABANDONED):

A. "Remove", protect, "preserve" incomplete material condition as found "existing". Also to "Save". Determine suitability for incorporation in this Contract. Store at a location mutually agreed upon. Dispose of all "Excess".

1.16 UNKNOWN - (NOT SHOWN ON DRAWINGS):

A. Products beneath surfaces indicated by drawings and encountered during the Work. Immediately support, shore, and protect. Immediately notify the Consultant and authority having jurisdiction. Allow free access for inspection. "Preserve" in proper condition until the Consultant determines definition and interpretation of Work. Take such measures as required for protection, reinforcement, or adjustment.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 07 50

SECTION 01 11 00

SUMMARY OF WORK

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Roof replacement and roof related renovations of the existing facility known as Baptist Hospital Beaumont Main Campus – Areas “ER”, “N3”, N4”, “S3”, and S4” located at 3080 College Street in Beaumont, Texas. Work includes, but is not limited to, the following:

1. Scope of Work:
   a. Remove and properly dispose of existing roofing, insulation, and sheet metal flashings, and miscellaneous components down to the existing lightweight insulating concrete substrate.
   b. Install polyisocyanurate insulation board adhered to mechanically attached base sheet or direct to lightweight insulating concrete.
   c. Install tapered polyisocyanurate insulation crickets and secondary cover board insulation set in adhesive.
   d. Install a two-ply modified bitumen roof membrane with smooth surfaced base ply and granule-surfaced cap sheet with reflective surfacing.
   e. Install new two-ply modified bitumen membrane flashings at penetrations, curbs, parapet walls, and risewalls.
   f. Install new sheet metal flashings at walls, curbs, and penetrations.
   g. Install new sheet metal coping along parapet walls.
   h. Raise, lower, or modify utility lines, piping, equipment, or other items which affect the installation of the new roof system.
   i. Raise curbs, equipment, etc., as necessary to achieve a minimum flashing height of 8-inches (200mm) above the finished roof.
   j. Install new supports for roof-top piping and designated roof-top equipment.
   k. Water test existing roof drains, clean/paint clamp rings and strainers, and secure with stainless steel hardware.
   l. Install walk pads at roof access and around roof-top equipment.
   m. Remove and re-install lightning protection system.
   n. Provide specified manufacturer and contractor warranties.

1.02 WEATHER PROTECTION:

A. Upon beginning work on the existing roof, Contractor shall patch and protect existing roofing as required to prevent leaks.

B. Contractor shall have at the work site, a sufficient amount of moisture proof coverings to provide quick temporary protection to exposed decking, unfinished roof, or open roof in the event of a rapid change in the weather.

1.03 CONTRACTOR'S USE OF PREMISES:

A. Confine operations at site to areas permitted by law, ordinances, permits and to limits of Contract as shown on Contract Documents.
B. Do not unreasonably encumber site with materials or equipment.
C. Do not load structure with weight that will endanger structure.
D. Assume full responsibility for protection and safekeeping of products stored on premises.
E. Move stored products which interfere with operations of Owner.
F. Obtain and pay for use of additional storage or work areas needed for operations.
G. Coordinate use of premises under direction of Owner's Representative.
H. Use of Site for Work and Storage:
    1. Restrict Work to areas indicated on Drawings.
    2. Store materials off site except for minor amounts of material which may be stored at designated staging area as approved by Owner.
    3. Access site in areas approved by Owner.
    4. Restrict parking to specific areas as approved by Owner.
    5. Restrict debris removal to Owner-approved area of building site.
    6. Restrict location of construction cranes to areas as approved by Owner.
    7. Do not allow construction traffic on existing roof membrane except as absolutely necessary to perform new work. Provide 3/4-inch (19mm) plywood protection over existing roof membrane at traffic and work areas.
I. Maintenance of Access and Operations:
    1. Do not perform operations that would interrupt or delay Owner's daily operations.
    2. Maintain access to existing building, facilities, parking, streets, and walkways; especially fire lanes.
    3. Schedule demolition and renovation operations with Owner in such a manner as to allow Owner operations to continue with minimum interruption.
    4. During period of construction, do not obstruct exit ways of Owner-occupied areas in any manner.
J. Maintenance of Existing Services:
    1. Do not disrupt existing utility services to existing building.
    2. Maintain environmental control in existing building, especially temperature, humidity, and dust control.
    3. Provide temporary lines and connections as required to maintain existing mechanical and electrical services in building.
    4. Gas piping at rooftop units may be temporarily disconnected (maximum four hours) to raise piping and replace flashing. Maintain cooling operation of unit during this period.
    5. Notify Owner a minimum of two days prior to each required interruption of mechanical or electrical services in building. These interruptions shall be only at such times and for lengths of time as approved by Owner. In no event shall interruption occur without prior approval of Owner.

K. Building Access:
   1. Access to roof construction areas shall be by way of exterior ladders in location as designated by Owner.
   2. Contractor will not have access to building interior except as pre-arranged with Owner.

1.04 BUILDING OCCUPANCY:

A. Building will be occupied during period of construction for the conduct of normal, daily operations. Cooperate with Owner's Representative in all construction operations to minimize conflict and to facilitate Owner usage.
B. Contractor shall conduct his operations so as to ensure least inconvenience to Owner's operations.
C. Contractor shall take precautions to avoid excessive noise or vibration that would disturb Owner's operations. When directed by Owner, Contractor shall perform certain operations at designated time of day or night in order to minimize disturbance to Owner's operations.
D. Contractor shall take all necessary precautions to assure a watertight condition in the building during construction.
E. Refer to Section 01 35 16 for provisions on security, special sequence of Work, maintenance of access and operations, maintenance of existing utilities and services, and building access restrictions.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 11 00

SECTION 01 21 00

ALLOWANCES

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Include allowances stated in Contract Documents in the contract sum.
B. Designate delivery dates for Products specified under each allowance in the construction progress schedule.
C. Designate quantities of materials required under each unit cost allowance in the Schedule of Values.

1.02 ALLOWANCES FOR PRODUCTS:

A. Amount of Each Allowance Includes:
   1. Cost of product to Contractor or Subcontractor, less any applicable trade discounts.
   2. Delivery to site.
   3. Labor required under allowance, except when labor is specified to not be included in allowance.
B. In addition to amount of each allowance, include in contract sum Contractor's costs for:
   1. Handling at site, including unloading, uncrating, and storage.
   2. Protection from elements and from damage.
   3. Labor for installation and finishing where labor is specified to not be a part of allowance.
   4. Other expenses required to complete installation.
   5. Contractor's and Subcontractor's overhead and profit.

1.03 SELECTION OF PRODUCTS UNDER ALLOWANCES:

A. Consultant’s Duties:
   1. Consult with Contractor in consideration of Products and suppliers or installers.
   2. Maintain log of unit pricing allowances and quantities.
   3. Make selection in consultation with Owner. Obtain Owner's written decision, designating:
      a. Product, model, and finish.
      b. Accessories and attachments.
      c. Supplier and installer, as applicable.
      d. Cost to Contractor, delivered to site or installed, as applicable.
      e. Manufacturer's Warranties.
B. Transmit Owner's decision to Contractor.
   1. Prepare Change Orders as required.
C. Contractor's Duties:
   1. Assist Consultant and Owner in determining qualified suppliers or installers.
   2. Obtain proposals from suppliers and installers when requested by Consultant.
   3. Make appropriate recommendations for consideration of Consultant.

4. Notify Consultant promptly of:
   a. Any reasonable objections Contractor may have against any supplier or party under consideration for installation.
   b. Any effect on Construction Schedule anticipated by selections under consideration.

1.04 CONTRACTOR RESPONSIBILITY FOR PURCHASE, DELIVERY, AND INSTALLATION:

A. On notification of selection, execute purchase agreement with designated supplier.
B. Arrange for and process Shop Drawings, Product Data, and Samples, as required.
C. Make arrangements for delivery.
D. Upon delivery, promptly inspect products for damage or defects.
E. Submit claims for transportation damage.
F. Install and finish products in compliance with requirements of referenced Specification Sections.

1.05 ADJUSTMENT OF COSTS:

A. Should net cost be more or less than specified amount of allowance, adjust contract sum accordingly by Change Order.
   1. Amount of Change Order will recognize any changes in handling costs at site, labor, installation costs, overhead, profit, and other expenses caused by selection under allowance.
   2. For products specified under unit cost allowance, unit cost shall apply to quantity listed in Schedule of Values.
   3. For products specified under unit allowance, unit cost allowance shall apply to quantities actually used with nominal amount for waste, as determined by receipts, invoices, or by field measurement.
B. Submit any claims for anticipated additional costs at site, or other expenses caused by selection under allowance, prior to execution of work.
C. Submit documentation for actual additional costs at site or other expenses caused by selection under allowance within sixty days after completion of execution of Work.
D. Failure to submit claims within designated time will constitute waiver of claims for additional costs.
E. At contract closeout, reflect approved changes in contract amounts in final statement of accounting.

1.06 CONSTRUCTION CONTINGENCY:

A. Include in the Contract amount Construction Contingency Allowance in the amounts shown in Paragraph 3.01.
B. Construction Contingency Allowance:
   1. Use only to cover cost of hidden, concealed, or otherwise unforeseen conditions that develop during project.
   2. Work which is clearly changed in scope shall be authorized and paid for only by means of change order executed in accordance with established Owner procedures.

3. Include in Base Proposal, profit and overhead to cover amount of contingency, as each contingency authorization processed will not include any profit or overhead for Contractor.
4. Proceed with accomplishing work only after receiving properly executed contingency authorization executed by Owner.
5. Do not bill Owner for any work authorized by this procedure until work has been accomplished.
6. Return to Owner any part of contingency allowance that is not used during construction of project.
7. At completion of project, Contracting Officer will reconcile all work accomplished through properly executed contingency allowance authorizations and provide for refund of any unused portion of contingency to Owner through properly executed change order.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

3.01 SCHEDULE OF ALLOWANCES:

A. Include an Allowance in the Base Proposal for the repairing/replacing 200 square feet of 2-inch thick lightweight insulating concrete fill.
B. Include an Allowance in the Base Proposal for replacing a total of 100 square feet of metal form deck.

END OF SECTION 01 21 00

SECTION 01 22 00

UNIT PRICES

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Unit prices for calculation of work, complete in place, to be added or deleted from the project.

1.02 MEASUREMENT AND PAYMENT:

A. It is the intent of the Proposal Form that aggregate proposal amount as submitted shall cover work required by Contract Documents in place, complete, and ready for use.
B. Unit prices include costs to fully complete work in place, including providing labor, materials, tools, equipment, services, supplies, incidentals, necessary operations, profit, overhead, maintenance, and warranties.
C. No costs in connection with work required by Contract Documents for proper and successful completion of Contract will be paid outside of or in addition to prices submitted.
D. Work not specifically set forth as pay items shall be considered subsidiary obligations of Contractor and costs shall be included in prices named.
E. Method of measurement and basis of payment shall be as stipulated in following paragraphs.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

3.01 UNIT PRICE ITEMS:

Item	Unit
1. Wood Nailers:	
2 x 4 wood nailer:	$_____ per linear foot
2 x 6 wood nailer:	$_____ per linear foot
2 x 8 wood nailer:	$_____ per linear foot
2 x 12 wood nailer:	$_____ per linear foot

2. Roof Deck: Remove, replace, and/or repair damaged/deteriorated decking, matching existing type, weight, gauge, and dimension:

   a. Lightweight Insulating Concrete Repair: $_____ per square foot

   b. Metal Form Deck Replacement: $_____ per square foot

3. Replace existing roof drain: $_____ each

4. Cast Iron Drain Piping (including all connections, fittings, hangers, and insulation): $_____ per linear foot

5. Plywood Sheathing (3/4-inch Thick): $_____ per square foot

3.02 AUTHORIZATION, RECORD KEEPING, AND PAYMENT FOR UNIT PRICE ITEMS:

A. Consultant's Field Representative will authorize Contractor when Unit Price Items are to be installed by Contractor. No payment will be made for any Unit Price Items installed by Contractor that is not authorized by Consultant's Field Representative or Owner.

B. Consultant's Field Representative will maintain a record of all installed Unit Price Items and this record shall be utilized to produce the Change Order to include the Unit Price Items in Contractor's contract.

END OF SECTION 01 22 00

SECTION 01 31 19

PROJECT MEETINGS

PART ONE - GENERAL

1.01 PRE-CONSTRUCTION CONFERENCE:

A. A Pre-construction Conference will be held at the site at a time to be designated by Owner.

B. Representatives of Contractor, including project superintendent, foreman, and all subcontractors, shall meet with Owner or his appointed representative.

1.02 AGENDA:

A. As a minimum, the following items will be on meeting agenda:
   1. Designation of all personnel.
   2. Communication.
   3. Construction Schedule.
   4. Critical work sequencing and deck repair procedures.
   5. Existing facilities and maintenance of operation.
   6. Submittals procedures.
   7. Project record documents procedures.
   8. Processing Field and Change Orders.

1.03 AGENDA FOR PRE-CONSTRUCTION MEETING

A. Attendance:
   1. Owner (Representative, if desired by Owner).
   2. Consultant and On-site Inspector.
   3. Contractor (Manager, Superintendent, and Foreman).
   4. Subcontractors.
   5. Material Suppliers (if required).

B. Sign-in list for all attending including names, title, phone number, and company.

C. Contract Review:
   1. Execution.
   2. Insurance certificates.
   3. Proposal review.
   4. Schedule of values and progress payment processing.
   5. Notice to proceed and start date.
   6. Bond, lien, and permit requirements.
   7. Project communications and problem resolution.
   8. Change order and additional work order processing.

D. Job Site Conditions and Requirements:
   1. Services (temporary):
      a. Water.
      b. Power (110, 220).
      c. Sanitary facilities.

d. Parking areas.
e. Telephone access.
f. Review each of the above as to who shall furnish each, restrictions, and scheduling.

2. Site Access and Restrictions:
   a. Set-up areas, material storage, and handling.
   b. Protection of buildings, grounds, and building interior.
3. Working Area and Preparation:
   a. Review work flow and schedule.
   b. Preparation work by other trades.
   c. Protection of existing roof and deck.

E. Technical Sections:
1. Review submittals.
2. Function of on-site inspector and other on site personnel.
3. Material storage methods.
4. Roof drainage conditions.
5. Coordination of work with other trades; and Owner.
6. Testing.
7. System review.
8. Manufacturer inspections:
   a. Inspection scheduled.
   b. Final inspection and issuance of warranty.

F. Safety and Security - Review Contractor responsibilities, and establish Owner monitoring procedures.
G. Summary and Questions
H. Exchange phone numbers, business cards, and emergency and daily contacts.
I. Issue record of meeting minutes to all attendees.

1.04 AGENDA FOR PROJECT MEETING

A. Attendance:
1. Owner (Representative, if desired by Owner).
2. Consultant.
3. Contractor (Manager, Superintendent, and Foreman).
4. Subcontractors.

B. Sign-in list for all attending, including names, titles, phone numbers, and company name.
C. Project Review:
1. Problem resolution.
2. Project communication.
3. Change order and/or additional work.
4. Review projected work flow and schedule against work completed to date.
5. Progress payment processing.

D. Job Site Conditions:
   1. Review set-up area, material storage, and handling.
   2. Review work to date against schedule.
   3. Review work by other trades.
   4. Review quality of work to-date with Contractor and Manufacturer.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 31 19

SECTION 01 33 00

SUBMITTALS

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Submittals required by Specification Sections and as listed in attached List of Submittals.

1.02 REQUIRED SUBMITTALS:

A. Applicator's License Certificate: Copy of the roofing material manufacturer's agreement/contract indicating date application was approved and expiration date.
B. Copy of the Contractor's executed insurance certificate.
C. Material manufacturer's written letter indicating approval/acceptance of specified roof system including roof system components, general installation requirements, performance criteria of proposed systems, and warranty to be issued for project.
D. Copies of independent test reports indicating criteria of proposed roof system(s) meeting or exceeding specified roof system performance.
E. Copy of the Contractor's executed payment and performance bonds, if required.
F. Shop drawings of details, if proposed different from project drawings.
G. Manufacturer’s product data sheets and Safety Data Sheets (SDS) on each material proposed for usage.
H. Sample of warranties that are to be issued upon project completion.
I. Submit list of subcontractors proposed to be utilized for work.
J. Detailed project schedule showing work phasing and proposed daily progress schedule including annotated roof plan depicting proposed daily work plan for project duration.
K. Permits, notices, and approvals of governing bodies or agencies.

1.03 SHOP DRAWINGS:

A. Original drawings, prepared by Contractor, subcontractor, supplier, or distributor, which illustrate some portion of the Work, showing fabrication, layout, setting, or erection details, prepared by a qualified detailer.
B. Prepare shop drawings for those details that are proposed different than the project drawings. Indicate on a roof plan, the proposed location of detail presented on shop drawing.
C. Indicate joints, types, and locations of fasteners, shapes, and sizes for each flashing condition. Note critical dimensions, gauge, and finish of sheet metal for each flashing condition.

1.04 PRODUCT DATA:

A. Submit manufacturer's product data sheets, diagrams, performance charts, and other standard descriptive data for each material proposed for use in construction of roof assembly and related flashings and components.
   1. Clearly mark each copy to identify pertinent materials, products, or models.
   2. Show dimensions and sizes required.
   3. Show performance characteristics and capacities.
   4. Indicate the Specification Section that applies to each submittal.

1.05 SAMPLES:

A. Physical examples to illustrate materials, equipment, and workmanship; and to establish standards by which completed Work is judged, if requested.

1.06 CONTRACTOR RESPONSIBILITIES:

A. Review shop drawings, product data, and samples prior to submission. Initial, sign, or stamp, certifying the Contractor's review of the submittal.
B. Verify:
   1. Field measurements.
   2. Field construction criteria.
C. Coordinate each submittal with requirements of Work and of Contract Documents.
D. Contractor's responsibility for errors and omissions in submittals is not relieved by Consultant review of submittals.
E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by the Consultant's review of submittals, unless Consultant gives written acceptance of specific deviations.
F. Notify Consultant, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
G. Begin no work which requires submittals until return of submittals with Consultant's stamp and initials or signature indicating review and indication to proceed as noted. Work performed prior to submission and approval of submittals may be subject for rejection.
H. Distribute submittals to respective parties after approval.

1.07 SUBMISSION REQUIREMENTS:

A. Schedule submissions to the Consultant immediately after Contract award.
B. Submit electronic copy of submittals. Provide SDS in separate file from product data sheets, shop drawings, and other submittals.
C. Submit samples as requested.
D. Accompany submittals with transmittal containing:
   1. Date.
   2. Project title and number.
   3. Contractor's name and address.
E. Provide submittal compiled together with a Cover and Table of Contents.

1.08 RE-SUBMISSION REQUIREMENTS:

A. Product Data and Samples: Submit new data and samples as required for initial submittal.
B. Shop Drawings:
   1. Revise initial drawings as required and re-submit as specified for initial submittal.
   2. Indicate on drawings any changes which have been made other than those requested.

1.09 DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

A. Consultant will retain approved submittals.
B. Consultant will forward an electronic copy of approved submittals to Owner and Contractor.
C. Contractor shall publish and distribute hard copies of submittals as required for construction, one for jobsite, and others as required by Contractor.

1.10 LIST OF SUBMITTALS:

SECTION 01 70 00 - CONTRACT CLOSEOUT

- Warranties and Bonds.
- Evidence of Payment and Release of Liens.

SECTION 02 40 00 - MINOR DEMOLITION AND RENOVATION WORK

- Product Data.
- Safety Data Sheets.

SECTION 07 22 00 - ROOF AND DECK INSULATION

- Product Data.
- Samples, if requested.

SECTION 07 52 00 - MODIFIED BITUMEN MEMBRANE ROOFING

- Product Data.
- Shop Drawings, where applicable.
- Samples, if requested.
- Safety Data Sheets.
- Roof Assembly Letter with supporting data.

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

- Product Data.
- Shop Drawings, where applicable.
- Samples, if requested.
- Color Chart.

SECTION 08 62 00 - UNIT SKYLIGHTS

- Product Data.
- Shop Drawings, where applicable.

SECTION 09 90 00 - EXTERIOR PAINTING

- Product Data.
- Samples, if requested.
- Color Chart.

SECTION 26 41 00 - LIGHTNING PROTECTION SYSTEM

- Product Data.
- System layout plan.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 33 00

SECTION 01 35 16

ALTERATIONS PROJECT PROCEDURES

PART ONE - GENERAL

1.01 DESCRIPTION:

A. Summary: The procedures and administrative requirements of this Section apply to all of the following Sections of the Specification which are involved in alterations to the existing building.

B. Extent Notes: Cut into or partially remove portions of the existing building as necessary to make way for new construction. Include such work as:
   1. Cutting, moving, or removal of items shown to be cut, moved, or removed.
   2. Cutting, moving, or removal of items not shown to be cut, moved, or removed, but which must be cut, moved, or removed to allow new work to proceed. Work or items which are to remain in the finished work shall be patched or reinstalled after their cutting, moving, or removal, and their joints and finishes made to match adjacent or similar work.
   3. Removal of existing surface finishes as needed to install new work and finishes.
   4. Removal of abandoned items and removal of items serving no useful purpose, such as abandoned piping.
   5. Repair or removal of dangerous or unsanitary conditions resulting from alterations work.

1.02 SCHEDULING AND ACCESS:

A. Work Sequence: Contractor shall submit detailed project plan with work sequence and phasing schedule.

B. Security:
   1. Be solely responsible for job site security.
   2. Protect completed work and stored items from vandalism and theft.
   3. Contact Owner for access to all security areas.

C. Maintenance of Access and Operations:
   1. During period of construction, Owner will continue to perform normal activities in existing building. Maintain proper and safe access to Owner-occupied areas at all times.
   2. Schedule demolition and remodeling operations with Owner in such a manner as to allow Owner operations to continue with minimum interruption.
   3. During period of construction, do not obstruct existing exit ways of Owner-occupied areas in any manner.

D. Maintenance of Existing Services:
   1. Maintain environmental control in existing building, especially temperature, humidity, and dust control.
   2. Provide temporary lines and connections as required to maintain existing mechanical and electrical services in building.

3. Equipment handling shall be limited to Owner-approved hours and may be limited to night time hours.
4. Notify Owner a minimum of forty-eight hours prior to each required interruption of mechanical or electrical service in building. Such interruptions shall be only at such times and for lengths of time as approved by Owner. In no event shall interruption occur without prior approval of Owner.

E. Temporary Barricades:
1. Provide and erect barricades as necessary to protect ground personnel, employees, passersby, etc., from hazards resulting from the Work during construction operation.
2. Prevent public access to construction activities, equipment, and storage areas.

F. Building Access:
1. Contractor will limit access to building interior except:
   a. To install temporary enclosures, protections, and equipment.
   b. During A/C modification and roof vent handling operations.
   c. For project or medical emergency.
2. Access to roof construction areas shall be by way of contractor-provided exterior ladder for construction personnel.

1.03 ALTERATIONS, CUTTING AND PROTECTION:

A. Extent:
1. Perform cutting and removal of deck work so as not to cut or remove more than is necessary and so as not to damage adjacent work.
2. Conduct work in such a manner as to minimize noise and to minimize accumulation and spread of dirt and dust.
3. Perform cutting for ductwork and other rectangular openings with carborundum saw with approved dust arrestor.

B. Securement of Openings: Protect all openings made in existing roofs, etc., with barricades to prevent accidents to Owner's and Contractor's personnel. If required by Owner, provide a workman at ground level inside the building at all times during the tear-off operations and when the roof deck or roofing is being installed. It will be the responsibility of this individual to alert personnel in the area of the work being performed overhead, to watch for falling debris, and to broom clean the area each day of any dirt that may result from the roof replacement operations.

C. Responsibility and Assignment of Trades:
1. Contractor shall assign the work of moving, removal, cutting, patching, and repair to trades under his supervision so as to cause the least damage to each type of work encountered, and so as to return the building as much as possible to the appearance of new work.
2. Patching of finish materials shall be assigned to mechanics skilled in the work of the finish trade involved.

D. Protection:
1. Protect remaining finishes, equipment, and adjacent work from damage caused by cutting, moving, removal, and patching operations. Protect surfaces which will remain a part of the finished work.

2. Cover existing walls and floors where necessary to prevent damage from construction operations.
3. During demolition, cutting, and construction, provide positive dust control by wetting dusty debris and by completely sealing openings to Owner-occupied areas with temporary seals so as to prevent spread of dust and dirt to interior areas.
4. After materials are installed, properly protect Work until final acceptance.
5. Repair any damage resulting from construction operations without cost to Owner.
6. Provide continuous security at openings cut into existing exterior walls and roofs during non-working hours. Prevent unauthorized entry into the existing facility through areas demolished or accessed as part of the Work.

E. Special Protection:
1. Comply with welding and cutting precautions specified in Section 01 50 00 - Temporary Facilities and Controls. In addition, provide Type I fire retardant enclosure around area of welding.
2. Provide temporary weather protection over open roof penetrations until final flashing is completed.
3. During equipment handling, provide a roof applicator at project with sufficient materials for temporary patching and sealing.
4. Provide roof applicator at jobsite continuously during rainstorms which may occur while job is in progress to make temporary or emergency repairs.

F. Debris:
1. Remove debris from the site daily. Removed material becomes property of the Contractor. Load removed material directly on trucks for removal from site. Dispose of removed material legally. Do not allow debris to enter sewers.
2. Do not allow material accumulations to endanger structure.
3. Cover and secure material accumulations as necessary to prevent the material from spreading over the rooftop or becoming airborne.
4. Submit material storage and disposal plan for review prior to job start.

1.04 PATCHING, EXTENDING, AND MATCHING:

A. Patch and extend existing work using skilled mechanics who are capable of matching the existing quality of workmanship. The quality of patched or extended work shall not be less than that which exists.
B. In areas where any portion of an existing finished surface is damaged, lifted, stained, or otherwise made or found to be imperfect, patch or replace the imperfect portion of the surface with matching material.
C. Provide adequate support or substrate for patching of finishes.
D. Quality:
1. In the Sections of the product and execution of Specifications which follow these General Requirements, no concerted attempt has been made to describe each of the various existing products that must be used to patch, match, extend, or replace existing work. Obtain all such products in time to complete the Work on schedule. Such products shall be provided in quality which is in no way inferior to the existing products.

2. The quality of the products that exist in the building, as apparent during pre-proposal site visits, shall serve as the Specification requirement for strength, appearance, and other characteristics.

E. Transitions:
   1. Where new work abuts or finishes flush with existing work, make the transition as smooth and workmanlike as possible. Patched work shall match existing adjacent work in texture and appearance so as to make the patch or transition invisible to the eye at a distance of no closer than 3 feet (1m).
   2. Where masonry or other finished surface is cut in such a way that a smooth transition with new work is not possible, terminate the existing surface in a neat fashion along a straight line at a natural line of division and provide trim appropriate to the finished surface.

F. Restore existing work that is damaged during construction to a condition equal to its condition at the time of the start of the Work, and to satisfaction of Owner.

1.05 REPAIR:

A. Replace work damaged in the course of alterations, except at areas approved by Owner for repair.
B. Where full removal of extensive amounts of almost-suitable work would be needed to replace damaged portions, then filling, straightening, and similar repair techniques, followed by finishing, will be permitted.
C. If the repaired work is not brought up to the standard for new work, Owner will direct that it be cut out and replaced with new work.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 35 16

SECTION 01 40 00

QUALITY CONTROL

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. General Quality Control.
B. Manufacturers' Field Services.

1.02 QUALITY CONTROL, GENERAL:

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.
B. Contractor shall be approved by manufacturer to perform the work for the specified guarantee period. Contractor shall have completed previous projects utilizing same materials and provide same warranty as specified herein.
C. Examine each phase of Work and have defective conditions corrected before starting subsequent operations which would cover, or are dependent upon, work in question.
D. Where visual examination is not sufficient, such as in verifying slope of roof deck for proper drainage, use instruments with qualified operators to examine work.
E. Utilize Owner's testing laboratory when services are necessary to assist Contractor in evaluating quality.
F. Perform roof removal and new roof material installation using full-time employees of the Contractor.

1.03 WORKMANSHIP:

A. Comply with industry standards, except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
B. Utilize qualified personnel who have experience with the specified materials to produce workmanship of specified quality.
C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
D. Provide finishes to match accepted samples.

1.04 MANUFACTURER'S FIELD SERVICES:

A. When specified in respective Specification Section, require manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, and to make appropriate recommendations.
B. Notify manufacturer's representative a minimum of two weeks prior to date of final inspection. Manufacturer's representative shall conduct an inspection of the completed roof before the final inspection, or shall attend the final inspection.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 40 00

SECTION 01 43 39

MOCK-UPS

PART ONE - GENERAL

1.01 DESCRIPTION:

A. Preparation of mock-ups representing proposed finished roofing, flashing, and sheet metal assemblies for review and approval.

1.02 QUALITY ASSURANCE:

A. Contractor to prepare mock-ups utilizing materials proposed for the finished product and to simulate the desired appearance of the finished product.
B. Prepare a sample installation of typical sheet metal flashings including wood blocking and proposed roof materials.
C. Construct mock-up at a location on the roof.
D. Mock-ups shall be no less than 60-inches in length, 12-inches in width.
E. Materials, finishes, thickness, attachments, dimensions, and profiles shall be as specified herein and as shown within the project.
F. Owner or Owner's Representative reserves the right to require any modifications deemed necessary. No requests for extra costs will be entertained unless an upgrade of the original design is involved.
G. Approved mock-ups shall constitute standard of acceptance for remaining work.

1.03 SCHEDULE OF MOCK-UPS:

A. Sheet metal edge flashing and coping with cleats and fasteners; 10-ft length; minimum 2 color options.
B. Sheet metal overflow scupper.
C. Sheet metal counter flashings at rise walls; 5-ft section.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 43 39

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART ONE - GENERAL

1.01 SANITARY FACILITIES:

A. Provide adequate temporary chemical toilets at time Work is commenced.
B. Maintain facilities in compliance with applicable health laws and regulations. Keep clean and unobtrusive.
C. Upon completion of Work, remove these facilities and all traces thereof.

1.02 STORAGE OF MATERIALS:

A. Provide suitable non-combustible, watertight coverings for storage of materials subject to damage by weather. Covering shall be of sufficient size to hold materials required on site at one time. Pallets shall be raised at least 6-inches (150mm) above ground, on heavy joists or sleepers.
B. If temporary storage sheds are used, locate storage areas where directed, maintain in good condition, and remove storage sheds when so directed. Locate storage areas of combustible construction a minimum of 30 feet (10m) from existing building.
C. Store materials on site unless otherwise approved by Owner.
D. Cover and protect materials subject to damage by weather, including during transit.
E. Do not use building as storage facility.
F. Provide additional storage at no cost to Owner in the event that additional storage area is required beyond that provided at project site.
G. Stored materials shall be available for inspection by Owner at all times.
H. Store flammable and volatile liquids in sealed containers located a minimum of 20 feet from existing buildings.
I. Transport flammable or volatile liquids in, and use from, U.L. listed safety cans.
J. Deliver material and equipment in manufacturer's original packaging with all tags and labels intact and legible. Handle and store material and equipment in such a manner as to avoid damage. Liquid products shall be delivered sealed, in original containers. Store roll goods in an upright position.
K. Proper storage of materials is the sole responsibility of Contractor. Protect all materials susceptible to moisture including, but not limited to, all roll goods, insulation, cant strip, wood, and plywood in dry, above ground, watertight storage. Keep all labels intact and legible, clearly showing the product, manufacturer, and other pertinent information.
L. Reject any materials becoming wet or damaged and remove from the jobsite immediately. Any insulation found to be improperly stored at the jobsite shall be considered wet at the discretion of Owner's Representative and removed from the jobsite.
M. Maintain products liable to degrade as a result of being frozen above 40 degrees Fahrenheit (4 degrees Celsius) in heated storage.

N. Random samples of all materials susceptible to moisture will be taken at various stages of the installation to ensure no significant variations in moisture.
O. Distribute material, debris, and equipment over the roof deck to avoid damage to the structural deck. Not more than two weeks supply of material shall be stored on a roof at any given time. Place materials and equipment to be stored on the roof as nearly direct over structural members as can be determined. Secure equipment, material, and debris on the roof to prevent movement by wind or other elements. Contractor assumes full responsibility for loading on the structural deck or roofing materials during roof replacement operations. Owner's Representative reserves the right to reject any loadings deemed unacceptable.

1.03 TEMPORARY WATER:

A. Make arrangements with Owner for water required for construction.
B. Provide hoses for conveyance.

1.04 TEMPORARY ELECTRICAL ENERGY:

A. Make arrangements with Owner for temporary electrical service for completion of the Work.
B. Provide all necessary temporary wiring (in conduit if requested by Owner), extensions, and temporary lighting devices without disruption to Owner’s operations.
C. Provide portable generators as necessary for power to complete work.

1.05 TEMPORARY LADDERS, SCAFFOLDS, HOISTS:

A. Furnish and maintain temporary ramps, scaffolds, hoists, or chutes as required for proper execution of Work.
B. Such apparatus, equipment, and construction shall meet requirements of applicable federal, state, and local safety and labor laws.

1.06 GUARDRAILS, BARRICADES, AND TEMPORARY COVERINGS:

A. Provide barricades as required to protect natural resources, site improvements, existing property, adjacent property, and passers-by.
B. Where pedestrian traffic is through or adjacent to work areas, provide necessary guardrails and barricades to protect pedestrians and to prevent pedestrian access to Work areas.
C. Remove guardrails and barricades at completion of construction.
D. Provide suitable temporary watertight coverings over windows and roof openings as required to protect interior equipment from inclement weather.
E. Provide suitable protection for stairs, elevator, and/or walls and floors in areas used for contractor roof access.
F. Provide temporary 6-foot (2m) chainlink fence around setup areas.

1.07 PROTECTION:

A. Maintain bench marks, monuments, and other reference points. If disturbed or destroyed, replace as directed.
B. Protect existing adjacent streets, sidewalks, curbs, buildings, and property including trees, lawns, and plants.
C. Refer to Section 01 35 16 for protection requirements of existing building.

1.08 TEMPORARY FIRE PROTECTION:

A. During construction, Contractor and his subcontractors and sub-subcontractors and their agents and employees shall comply with fire safety practices as outlined in NFPA Pamphlet 241 and local fire protection codes, and in addition shall:
   1. Provide following stored pressure extinguishers during entire construction period:
      a. One U.L. rating 4A-60B:C dry chemical fire extinguisher.
      b. One U.L. rating 2A 2-1/2 gallon water fire extinguisher.
      c. One U.L. rating 10B:C carbon dioxide fire extinguisher with horn and hose assembly.
   2. Provide fire extinguishers together in each of following areas:
      a. Each 3000 square feet of work area or fraction thereof.
      b. Each temporary structure including construction office and storage and tool and workshop sheds.
      c. Each area where propane torches or other similar heating elements are in use.
   3. Contractor's superintendent or other assistant superintendents shall be appointed as project fire warden for entire construction period.
   4. Train workmen in proper use of each type fire extinguisher.
   5. Post telephone number of fire department, specific information regarding location of on-site fire fighting equipment, and procedures to be followed in event of fire.
   6. Maintain free access at all times to fire extinguisher equipment, street fire hydrants, and outside connections for standpipe hose systems.
   7. Maintain all exit facilities and access thereto, free of material and other obstructions.

1.09 EMPLOYEE CONTROL:

A. Do not allow construction employees to enter Owner-occupied areas. Maintain construction traffic in designated access routes.

1.10 PARKING FACILITIES:

A. Parking area for a designated number of construction personnel vehicles will be made available at the site by Owner.

1.11 CLEANING DURING CONSTRUCTION:

A. Oversee cleaning and ensure that building and grounds are maintained free from accumulations of waste materials and rubbish.
B. Sprinkle dusty debris with very fine water mist to control accumulation of dust. Do not use water in quantity so as to puddle.

C. At not less than every day during progress of work, clean up work areas and access areas and dispose of waste materials, rubbish, and debris.
D. At Contractor's option, on-site dump containers may be used for collection of waste materials, rubbish, and debris. Locate containers a minimum of 30 feet (10m) away from building entrances at a location acceptable to Owner. If used, remove containers when filled.
E. Do not allow waste materials, rubbish, and debris to accumulate and become an unsightly or dangerous condition.
F. Remove waste materials, rubbish, and debris from site and legally dispose of at public or private dumping areas off Owner's property.
G. Keep streets and access to site free of rubbish and debris.
H. Lower waste materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.

1.12 LEAK (WATER) DAMAGE CONTROL:

A. In the event of rain during roof replacement construction operations, immediately inspect interior of building for leaks.
B. Coordinate with Owner for access to building.
C. Continue to inspect building on a regular basis until rain ceases.
D. If leaks are discovered during rains, immediately cover and protect equipment with fire retardant sheeting in the area of the leak. Immediately notify Owner of leak condition.
E. Perform emergency repairs on roofing to stop leaks.
F. Take all necessary precautions to protect the roof from damage. Repair all areas of damage caused by the work of Contractor, at Contractor's expense.
G. Contractor is to be aware of the potential for roof leaks on the existing roof. As a result, Contractor is to take necessary precautions to prevent damage to the existing roof. Damage to the existing roof is to be repaired on a daily basis by Contractor.

1.13 PERMITS:

A. Obtain and pay for all required local and state permits, licenses, and registrations. Work may be subject to ordinances, laws, codes, and regulations.
B. Prior to proposingding, notify Owner and Consultant of any violation, omission, or questions of compliance. Required corrections to Specifications will be made via Addenda prior to receipt of Proposals.
C. Be responsible for full compliance and bear cost of additional work not specified that may be required by authorities having jurisdiction.

1.14 REGULATORY REQUIREMENTS:

A. International Building Code (IBC), latest edition as adopted and amended by the governing body.
B. Occupation Safety and Health Administration (OSHA) requirements, as applicable.
C. United States Environmental Protection Agency (EPA) requirements, as applicable.
D. Adhere to all limitations, cautions, and regulatory standards referenced by the manufacturer of each material provided.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 50 00

SECTION 01 60 00

MATERIAL AND EQUIPMENT

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Material and Equipment Incorporated Into Work:
   1. Conform to applicable specifications and standards.
   2. Comply with size, make, type, and quality specified, or as specifically approved in writing by Owner.
   3. Manufactured and Fabricated Products:
      a. Design, fabricate and assemble in accordance with recognized industry standards.
      b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
      c. Two or more items of same kind shall be identical, by same manufacturer.
      d. Products suitable for service conditions.
      e. Adhere to equipment capacities, sizes, and dimensions shown or specified unless variations are specifically approved in writing.

B. Do not use material or equipment for purposes other than that for which it is designed or is specified.

1.02 REUSE OF EXISTING MATERIAL:

A. Except as specifically indicated or specified, materials and equipment removed from existing structure shall not be used in completed Work.

B. For material and equipment specifically indicated or specified to be reused in Work:
   1. Use special care in removal, handling, storage, and reinstallation to assure proper function in completed Work.
   2. Arrange for transportation, storage, and handling of products which require off-site storage, restoration, or renovation. Pay costs for such work.

1.03 MANUFACTURER'S INSTRUCTIONS:

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in installation, including two copies to Consultant.
   1. Maintain one set of complete instructions at jobsite during installation and until completion.
   2. Submit two copies to Consultant with appropriate Product Data submittal.
   3. Consultant will forward one copy to Owner.

B. Handle, install, connect, clean, condition, and adjust products in strict accordance with such instructions and in conformity with specified requirements.
   1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Consultant for further instructions.
   2. Do not proceed with work without clear instructions.

C. Perform Work in accordance with manufacturer's instructions. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING:

A. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at site.
   1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
   2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.05 SUBSTITUTIONS AND PRODUCT OPTIONS:

A. Contractor's Options:
   1. For products specified only by reference standard, select any product meeting that standard, by any manufacturer.
   2. For products specified by naming several products or manufacturers, select any product and manufacturer named.
   3. Products specified by naming only one product and manufacturer are to establish a quality standard. For products other than the named product, submit request for substitution as specified below.

B. Substitutions:
   1. During Proposing, Consultant will consider written requests from Proposers and manufacturers for substitutions of products in place of those specified. Such requests must be received at least two days prior to Proposal Date. Requests received after that time will not be considered. Approval of proposed substitutions will be set forth in an Addendum or letter of approval. Requests for substitutions shall include data listed below.
   2. Submit two copies of request for each substitution, supported with complete data, drawings, and appropriate samples substantiating compliance of proposed substitution with Contract Documents, including:
      a. Product description, performance and test data, and applicable reference standards.
      b. Name and address of similar projects on which product was used and date of installation.
      c. Itemized comparison of qualities of proposed substitution with that specified.
      d. Changes required in other elements of Work because of substitution.
      e. Affect on construction schedule.
      f. Availability of maintenance service and source of replacement materials.

C. Contractor's Representation: Request for substitution constitutes a representation that Contractor:
   1. Has investigated proposed product and determined that it is equal to or superior in all respects to that specified.
   2. Will provide same warranties for substitution as for product specified.
   3. Will coordinate installation of accepted substitution into Work and make such other changes as may be required for Work to be complete in all respects.
   4. Waives all claims for additional costs, under his responsibility, related to substitution which subsequently becomes apparent.

D. Substitutions will be not be considered if:
   1. They are indicated or implied on Shop Drawings or Product Data submittals without formal request submitted in accordance with this Section.
   2. They are submitted after time limit specified above.
   3. Acceptance will require substantial revision of Contract Documents.

E. If substitution is not approved or accepted, Contractor shall furnish specified product.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 60 00

SECTION 01 70 00

CONTRACT CLOSEOUT

PART ONE - GENERAL

1.01 GENERAL:

A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.02 SUBSTANTIAL COMPLETION:

A. Contractor: Shall notify Consultant that Project is substantially complete and schedule time for inspection.
B. Consultant will make an inspection after notification.
C. Should Consultant consider Work not complete:
   1. He will immediately notify Contractor, in writing, stating reasons.
   2. Contractor shall complete Work and send second written notice to Consultant certifying Project is substantially complete.
   3. Consultant will reinspect Work.

1.03 FINAL INSPECTION:

A. Contractor shall submit written certification that:
   1. Contract Documents have been reviewed.
   2. Project has been inspected for compliance with Contract Documents.
   3. Work has been completed in accordance with Contract Documents.
   4. Equipment and systems have been tested in presence of Owner's Representative and are operational.
   5. Project is complete and ready for final inspection.
B. Consultant will make final inspection after notification from Contractor.
C. Should Consultant consider Work complete in accordance with requirements of Contract Documents, he will request Contractor to make Project Closeout submittals.
D. Should Consultant consider Work not complete:
   1. He will notify Contractor in writing, issuing inspection list to Contractor with noted items requiring further consideration.
   2. Contractor shall take immediate steps to remedy the stated deficiencies and submit initialed inspection list to Consultant certifying Work is complete.
   3. Consultant will reinspect Work.

1.04 REINSPECTING COSTS:

A. Should Consultant be required to perform subsequent inspections of the Work due to the failure of the Contractor to correct deficient work, Owner will compensate Consultant for additional services and deduct amount paid to Consultant from the final payment to Contractor.

1.05 CLOSE-OUT SUBMITTALS:

A. Evidence of compliance with requirements of governing authorities.
B. Warranties and Bonds: Refer to requirements of this Section.
C. Evidence of Payment and Release of Liens: Refer to requirements of General and Supplementary Conditions.

1.06 WARRANTY/GUARANTEE:

A. Submit original and duplicate copies of both Contractor's Warranty and Manufacturer's Guarantee to Consultant for review. After review, Consultant will forward Warranty and Guarantee to Owner. Consultant shall approve final pay application (retainage) upon receipt of both Contractor's Warranty and Manufacturer's Guarantee.

1.07 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS:

A. Final Release and Waiver of Liens:
   1. Contractor's Waiver of Liens.
   2. Separate waivers of liens for subcontractors, suppliers, and others with lien rights against property of Owner, together with complete list of those parties.
B. All submittals shall be notarized and sealed before delivery to Consultant.

1.08 FINAL ADJUSTMENT OF ACCOUNTS:

A. Submit final statement of accounting to Consultant.
B. Statement shall reflect all adjustments.
   1. Original Contract Sum.
   2. Additions and Deductions resulting from:
      a. Previous Change Orders.
      b. Deductions for uncorrected Work.
      c. Deductions for Reinspection Payments.
   3. Total Contract Sum, as adjusted.
   4. Previous payments.
   5. Sum remaining due.
C. Consultant will prepare final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.09 FINAL APPLICATION FOR PAYMENT:

A. Submit final application in accordance with requirements of General Conditions.
B. Owner **[[Consultant]]** shall review all data supplied for conformance with Contract Documents. When approved, Owner will accept the Work, release Contractor (except as to conditions of the Performance Bond, any legal rights of Owner, required guarantees, and correction of Faulty Work after final Payment), and make final payment to Contractor.
C. Final payment will not be approved or released until receipt of proper close-out documents.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

END OF SECTION 01 70 00

SECTION 01 74 23

CLEANING

PART ONE - GENERAL

1.01 GENERAL:

A. Maintain premises free from accumulations of waste, debris, and rubbish caused by construction operations.

B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials. Clean all sight-exposed surfaces. Leave project clean and ready for occupancy.

1.02 REQUIREMENTS OF REGULATORY AGENCIES:

A. Codes and Standards: Applicable federal, state, and local codes and regulations relative to environmental safety regulations.

B. Hazards Controls: Store volatile waste in covered metal containers and remove from premises daily. Prevent accumulation of wastes which create hazardous conditions.

C. Pollution Control: Conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws.

1. Burning or burying of rubbish and waste materials on the project site is prohibited.
2. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is prohibited.

PART TWO - PRODUCTS

2.01 CLEANING MATERIALS:

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART THREE - EXECUTION

3.01 DURING CONSTRUCTION:

A. Keep work area and all occupied property in neat and orderly condition at all times. Oversee cleaning and ensure that building and grounds are maintained free from accumulations of waste materials and rubbish. Sprinkle dusty debris with very fine water mist to control accumulation of dust. Do not use water in quantity so as to puddle. Do not allow waste and other materials such as rubbish, debris, wrappers, etc., to accumulate and become unsightly or hazardous. Promptly remove equipment and excess materials as they become no longer needed for the progress of the work. At not less than every day during progress of work, clean up work and access areas and dispose of waste materials, rubbish, and debris. Legally dispose of waste materials, rubbish, and debris at public or private dumping areas off

Owner's property. At the completion of work, restore work area to its original condition. Lower waste materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights. Keep street and access to site free of rubbish and debris.

B. Contractor shall be responsible for damage to or destruction of property of any sort resulting from the work or caused by defective work, or the use of unsatisfactory materials or workmanship.
C. Contractor shall be responsible for the preservation of all private property, trees, fences, etc., along the adjacent street, right-of-way, etc., and shall use every precaution necessary to prevent damage or injury thereto. Use suitable precautions to prevent damage to pipes, conduits, and other structures.
D. If damage to any structures, utilities, or other improvement occurs by reason of Contractor's operations even though special precautions have been employed, Contractor shall be entirely responsible for such damage and shall make all repairs as required to the satisfaction of Owner.
E. Do not injure, destroy, or trim landscaping without authorization by Owner. Landscaping damage will be replaced by Contractor with new stock or with other stock satisfactory to Owner at the expense of Contractor.

3.02 FINAL CLEANING:

A. Employ skilled workmen for final cleaning.
B. Remove grease, mastics, adhesives, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior surfaces.
C. Repair, patch, and touch-up marred surfaces to match adjacent finishes.
D. Broom clean paved surfaces; rake clean other surfaces of grounds.
E. Clean stairwell, freight elevator, and loading dock area.
F. Prior to final completion or Owner occupancy, conduct an inspection of sight-exposed interior and exterior surfaces and all work areas to verify that entire Work area is clean.

END OF SECTION 01 74 23

SECTION 02 40 00

MINOR DEMOLITION AND RENOVATION WORK

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Removing existing roofing, insulation, flashing, and sheet metal.
B. Removing abandoned equipment, curbs, and penetrations and repairing openings in decking.
C. Modifying existing roof penetrations, equipment supports, curbs, and piping to provide proper flashing height and flashing detail.
D. Installing new nailers, blocking, and sheathing at designated locations.
E. Providing new supports for roof-top equipment and utility piping.
F. Performing other miscellaneous and incidental work required.

1.02 RELATED SECTIONS:

A. 07 22 00 - Roof Board Insulation.
B. 07 52 00 - Modified Bitumen Membrane Roofing.
C. 07 62 00 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).
B. Corps of Engineers (CRD).
C. FMG Property Loss Prevention Data Sheet 1-49 “Perimeter Flashing”.

1.04 PROJECT CONDITIONS:

A. Environmental Requirements:
   1. Do not remove existing roofing and flashing in inclement weather or when rain is predicted with 30 percent possibility or greater.
   2. When ambient temperature is below 60 degrees Fahrenheit (15 degrees Celsius), expose only enough temperature sensitive materials required within four hour period.
   3. Do not expose materials to constant temperature in excess of 180 degrees Fahrenheit (82 degrees Celsius).
B. Emergency Equipment: Maintain on-site adequate materials necessary to apply emergency temporary weather protection of incomplete work area in event of sudden storms or inclement weather.
C. Smoking is prohibited on roof areas, in existing building, and Owner's property except at designated locations.

1.05 SEQUENCING AND SCHEDULING:

A. Sequence demolition and renovation with sequence of new work to maintain facility in dry, watertight condition on daily basis.
B. Coordinate roof work so that no more existing items are removed in one day than can be replaced with new materials in same day.
C. Coordinate work with Owner's operational requirements.
D. Coordinate demolition work and removal with roofing work to maintain facility in dry, watertight condition on a daily basis.

1.06 WARRANTY:

A. Provide Contractor's warranty covering defects in installed materials and workmanship for period of two years from date of final acceptance.

PART TWO - PRODUCTS

2.01 MATERIALS:

A. Wood Members, Nailers, and Blocking Lumber: Noncombustible Standard Grade Fir or No. 2 Southern Yellow Pine bearing UL label, Kiln-dried after treatment (KDAT), complying with American Lumber Standards of manufacturer’s association under whose rules lumber is produced, minimum size 2-inches (50mm) by 6-inches (150mm), nominal.
B. Treatment for Wood Members: Pressure-preservative treated in accordance with AWPA C2, C9 standards, Above Ground Contact Alkaline Copper Quat Type C (ACQ-C) or Copper Azole Type A (CBA-A) at 0.20 pcf.
C. Plywood: Exterior-grade sheathing; Grade: CDX; 1/2-inch thickness.
D. Gypsum Sheathing/Roof Board: 1/2-inch (13mm) thick moisture resistant gypsum core roof board such as "Dens-Deck Prime" by Georgia Pacific or “SecuRock” by U.S. Gypsum.
E. Fasteners:
    1. Wood Substrate:
        a. Securement of metal flanged items such as flashing pans, metal edge/fascia, cleats, etc., shall be nails, No. 11 gauge, double hot-dipped galvanized, ASTM A153, steel or stainless steel wire with 3/8-inch (9mm) diameter head and ring shank fasteners for anchoring flanges of sheet metal fabrications shall be of sufficient length to achieve a minimum 1-1/4-inch embedment into solid wood substrate such as "R-103-A Stormguard Asphalt and Fiberglass Shingle Nail" by Maze Nails (800/435-5949).
        b. Securement of wood to wood shall be nails, No. 11 gauge, double hot-dipped galvanized steel or stainless steel wire nail with ring shank and 9/32-inch (7mm) diameter head such as "Stormguard PTL Anchor-Down Nail" by Maze Nails (800/435-5949); 10d or length required to provide 1-inch (25mm) penetration minimum into substrate.

c. Securement of exposed items to wood substrate shall be No. 14 stainless steel screw with stainless steel washer and integral rubber seal; length required to provide 1-inch (25mm) penetration minimum into substrate.
d. Fasteners for securing roofing materials to wood substrate shall be a hardened stainless steel nail with a 1-inch (25mm) diameter round head and ring shank; length to provide 1-inch (25mm) penetration into substrate, as manufactured by Simplex Nail Co.
e. Fasteners for securing steel to wood substrate shall be No. 10 stainless steel wood screw with stainless steel washer and integral rubber seal, length to achieve 1-inch embedment into wood.
f. Fasteners for securing wood nailer to wood nailer in vertical position shall be 20 gauge galvanized steel plate, 2-inches wide by 4-inches long such as “MP 24 Mending Plate” by Simpson Strong-Tie Co., Inc. and “A34 Framing Anchor” by Simpson Strong-Tie Co., Inc. for corner connections.

2. Concrete Substrate:
   a. Fasteners for securing sheet metal items such as surface-mounted counterflashings, termination/compression bars, etc., to concrete substrate shall be a pre-assembled drive anchor with a coated steel or steel alloy drive screw, a lead/zinc alloy expansion anchor body (1/4-inch (6mm) diameter, 1-1/2-inch [38mm] length) and a stainless steel washer with integral rubber seal (1-1/8-inch diameter) such as "Zamac Hammer-Screw" as manufactured by Powers Fasteners, Inc., or “Coated Drive Pin Fastener” by Firestone Specialty Products.
   b. Fasteners for securing wood blocking to concrete substrate at roof perimeters shall be stainless steel sleeved stud expansion bolt, 1/2-inch (13mm) diameter (minimum), with 3/4-inch diameter stainless steel washer such as "Kwik Bolt II" by Hilti, "Tru Bolt Wedge" by ITW Ramset, or "Lok/Bolt" by Powers Fasteners, Inc. Fasteners for securing wood blocking to concrete substrate for miscellaneous applications shall be 1/4-inch diameter, 2-3/4-inch long coated screw with hex head such as "Tapcon" by ITW Buildex.
3. Masonry Substrate:
   a. Fasteners for securing wood to solid masonry at roof perimeters shall be stainless steel expansion anchor, 3/8-inch (9mm) diameter (minimum), with 3/4-inch diameter stainless steel washer such as "Countersunk Kwik Bolt II" by Hilti. Fasteners for securing wood to solid masonry for miscellaneous applications shall be 1/4-inch diameter, 2-3/4-inch long coated screw with hex head such as "Tapcon" by ITW Buildex.
   b. Fasteners for securing wood to hollow base masonry shall be 3/8-inch (9mm) diameter (minimum), stainless steel threaded rod, with 3/4-inch diameter stainless steel washer, nut, and screen tube such as "HIT C-20 Adhesive Anchor" by Hilti.

c. Fasteners for securing sheet metal items to concrete substrate shall be a pre-assembled drive anchor with a coated steel or steel alloy drive screw, a lead/zinc alloy expansion anchor body (1/4-inch (6mm) diameter, 1-1/2-inch [38mm] length) and a stainless steel washer with integral rubber seal (1-1/8-inch diameter) such as "Zamac Hammer-Screw" as manufactured by Powers Fasteners, Inc., or “Coated Drive Pin Fastener” by Firestone Specialty Products.

4. Steel Substrate:
   a. Fasteners for securing plywood to steel substrate shall be self-drilling, 1-1/2-inch long coated No. 10 screw with wafer head such as "Traxx Wood to Metal Fastener" by ITW Buildex. Fasteners for securing wood nailers/blocking to steel substrate shall be self-drilling coated heavy duty screw, 1/4-inch (6mm) diameter (minimum), with 5/8-inch (16mm) diameter washer such as "No. 14 Heavy Duty Screw" by OMG Roof Products.
   b. Fasteners for securing steel to steel substrate shall be self-tapping No. 14, 1-1/2-inch long stainless steel screw with stainless steel washer and bonded integral rubber seal.
5. Plywood Clip: 20 gauge galvanized steel H-clip such as "PSCL Panel Sheathing Clip" by Simpson Strong-Tie Co., Inc. (800/999-5099).
6. Receiver in Reglet: Soft, malleable lead sheet, size and shape to fit in joint and maintain compression against receiver.

F. Rust Inhibitive Primer: 100 percent acrylic resin primer such as “Metalclad Interior-Exterior Acrylic Latex Flat Primer & Finish #41702”, Devoe & Raynolds Co.

G. Piping/Conduit Supports: Pre-manufactured assembly with molded plastic/rubber base, 10-inches by 16-inches (250mm by 400mm); 1/2-inch (13mm) threaded rods and accessory bar, "Type PP-10 with Strut” for conduit/condensate or “Type PP-10 with Roller” for steel/gas piping as manufactured by PHP System/Design, Houston, Texas (800/797-6585) or Models 48-R-AH and 24-R-AH by Miro Industries, Inc. (800/768-9678).

H. Pre-manufactured Equipment Curb Supports: Pre-engineered and shop fabricated 18 gauge galvanized steel shell with integral base plate, cap flashing, and nailer, 16-inches high such as "TEMS-3" by Thycurb.

I. Non-shrink Grout: Quick-setting grout formula meeting Corps of Engineers specification CRD-C-621, Type D and ASTM C-1107, Grade C, such as “Five Star Instant Grout” by Five Star Products, Inc., “Sika Grout 212” by Sika Corp., or approved equal.

J. Tie-Down Wire Rope: 1/16-inch diameter; 7 x 19 strand type; Type 304 stainless steel wire rope, minimum working load of 740 pounds, minimum breaking load of 3700 pounds with stainless steel thimbles and clamps.

K. Paint for Roof-top Items: Lusterless (Flat) Acrylic Finish: Two coats over filler coat or primer coat such as Acrylic Primer of "ProIndustrial Acrylic Primer" by Sherwin Williams and Finish Coat of "ProIndustrial Acrylic Paint" by Sherwin Williams or approved equal.

L. Deck Repair Materials:
   1. Lightweight Insulating Concrete: Quick-setting, cementitious-based material such as "ZonoPatch" as manufactured by Siplast, "Strong Seal Quick Level Plus" by The Strong Company Inc., or approved equal.
   2. Metal Decking: 22-gauge G-60 galvanized steel decking, flute dimension, and spacing to match existing.

PART THREE - EXECUTION

3.01 EXAMINATION:
A. Examine existing building and existing roofing to determine existing physical conditions that affect removal of existing roofing and installation of new roofing.
B. Verify that required barricades and other protective measures are in place.

3.02 PREPARATION:
A. Take measures to maintain watertight conditions during term of Contract.
B. Install interior protection and dust partitions where deck penetrations shall be removed or replaced.
C. Protect adjacent surfaces.
D. Roof Drains:
   1. Examine existing drain lines for debris or blockage.
   2. Clean drains and drain lines, removing debris, excessive bitumen, or aggregate. Flush with water to ensure that drains flow freely.
   3. Cap drains with drain plugs during daily operations.
   4. Remove plugs after daily clean-up and prior to onset of rainfall.

3.03 MINOR DEMOLITION OPERATIONS:
A. Execute demolition in careful and orderly manner with least possible disturbance or damage to adjoining surfaces and structure.
B. Avoid excessive vibrations in demolition procedures that would be transmitted through existing structure and finish materials.
C. Roof Removal:
   1. Remove existing roofing, insulation, and flashings; abandoned and obsolete equipment; metal flashings, vents, curbs, and other such items; and sheet metal down to roof deck.
   2. Trim existing counterflashing as required for installation of new materials.
   3. Do not stockpile debris on roof surface. Promptly dispose of obsolete equipment and debris at authorized disposal site each day. Use chutes to transfer debris from roof surface to dumpsters.
   4. Provide protective method, such as plywood set on minimum 1-inch (25mm) EPS insulation, when hauling debris over existing roof membrane.

3.04 MINOR RENOVATION WORK:

A. Prepare substrates in accordance with roofing manufacturer's recommendations.

B. Decking:

1. Metal Decking:
   a. Cover holes or openings 12-inches (300mm) in diameter or smaller with a plate of 18 gauge sheet metal. Extend plate minimum 4-inches (100mm) beyond edge of hole and onto adjacent unaffected rib. Mechanically fasten new decking or plate with screws spaced 6-inches (150mm) on-center.
   b. Repair holes or openings greater than 12-inches (300mm) in diameter with new deck material. Extend new decking 18-inches (300mm) minimum past nearest bar joist or support member. Mechanically fasten new decking or plate with screws spaced 6-inches (150mm) on-center.
   c. Remove loose rust, bitumen, or other foreign material from existing deck that would prohibit proper installation of new materials.
   d. Remove rust by wire brushing or other appropriate method. Apply rust inhibitor over prepared areas of metal deck.
2. Lightweight Insulating Concrete Fill:
   a. Remove wet, deteriorated, cracked, crumbled, or otherwise deemed non-functional lightweight insulating concrete.
   b. Install new lightweight insulating concrete repair material over existing metal deck or lightweight fill. Perform metal deck repairs as previously specified prior to placement of repair material, where necessary.
   c. Install new material to match thickness of adjacent remaining substrate.
   d. Place lightweight insulating concrete repair material in accordance with manufacturer's instructions, using equipment and procedures to avoid segregation of mix and loss of air content. Do not vibrate or work mix except for screeding or floating.
   e. Begin curing operations immediately after placement, and air cure in accordance with manufacturer's recommendations.
   f. Include in Base Proposal, the use of repair material to fill cracks, voids, and as leveling medium to provide suitable substrate for new roofing.
   g. Cover holes or openings 12-inches (300mm) in diameter or smaller with a plate of 18 gauge sheet metal. Extend plate 4-inches (100mm) beyond edge of hole and onto adjacent substrate.
   h. Provide allowance for replacement of 200 square feet of lightweight insulating concrete fill at 2-1/2-inch [67.5mm] thickness in Base Proposal.

C. Nailers:

1. Install wood nailers/blocking in general accordance with FMG DS 1-49 and as supplemented herein with these specifications.
2. Replace wood nailers and curbs with new nailers and curbs as required.
3. Install wood nailers to match height of new insulation board.
4. Secure 2X base nailer into structure and/or substrate for anchorage of cleats and/or fascias of sheet metal fabrications, width as necessary to extend beyond horizontal flange of sheet metal fabrication.

5. Clean and prepare existing surfaces to receive wood nailers and curbs.
6. Install 2 X 6 wood nailer, minimum, as base nailer at perimeters or tops of parapet walls. Nailers shall match width of wall and provide minimum 1-inch per foot slope toward roof.
7. Install wood nailers and curbs continuously with 1/4-inch (6mm) gap between each section. Set level and true. Pre-drill nailers prior to attachment. Countersink fastener in base nailer so that washer and head of fastener or nut are recessed below top of nailer.
8. Securely fasten to structure with appropriate fasteners to resist minimum 175 pounds per linear foot (780N per 300mm) force in any direction and spaced 12-inches on-center. Use of powder-actuated fasteners is prohibited. Place a fastener within 3-inches (75mm) of each end of each section of wood blocking.
9. Secure nailers to concrete deck with appropriate fasteners spaced 24-inches (600mm) on-center. Secure nailer with a minimum of two fasteners per nailer.
10. Stagger joints in subsequent layers of nailers from joints in underlying layer of nailers a minimum of 12-inches (300mm).
11. Install nailers so that ends and sides of adjoining nailers are aligned to form right angles (nominal) at corners.
12. Weave ends of subsequent layers of nailers at corners so that ends of nailers do not align.
13. Secure nailers to wood substrate using nails 24-inches (600mm) on-center, staggered. Install nails on an angle.
14. Secure nailers with self-tapping steel fastener to structural steel with self-drilling screw or through-bolt spaced 12-inches on-center.
15. If attaching wood nailer to concrete masonry block, install stainless steel threaded rod spaced 12-inches (300mm) on-center in fully grouted cell/core of CMU.
16. Reduce fastener spacing 50 percent at a distance of 10 feet (3m) from each corner.
17. Secure new nailer to existing nailer or curb when increasing curb height utilizing appropriate fasteners, gusset plates positioned 12-inches o.c., and framing anchors positioned at corners.

D. Plywood/Gypsum Sheathing:
1. Install new sheathing at walls, curbs, and over unsuitable substrates to receive new roofing. Replace damaged, deteriorated, or non-salvageable existing sheathing.
2. Secure sheathing to substrate with flat head fasteners (type appropriate for substrate) spaced 12-inches (300mm) on-center.
3. Secure sheathing to wood substrate with nails spaced 6-inches (150mm) on-center.
4. Install new sheathing at roof hatches and metal curbs. Secure sheathing to substrate with flat head fasteners (type appropriate for substrate) spaced 12-inches (300mm) on-center. Trim exposed ends of screws on inside of hatch/curb.

E. Abandoned Equipment/Curb and Deck Opening Infill:
   1. Remove and disconnect abandoned existing equipment, curb, and/or penetrating element as necessary and required to expose opening in deck and facilitate new repair.
   2. Secure 3-inch X 3-inch X ¼-inch galvanized steel angles around perimeter of opening to provide new supports for new decking with 3/8-inch diameter stainless steel bolts with stainless steel nuts and washers spaced 12-inches on-center.
   3. Secure new fluted steel decking to steel angles with #12 self-drilling/tapping screws with ¾-inch diameter washer spaced 6-inches on-center.
   4. Install new insulation to match height of existing lightweight insulating concrete decking to serve as substrate for new roof system.

F. Rooftop Equipment:
   1. Move and elevate air conditioning units and other rooftop equipment as required to install roofing materials complete and in accordance with plans and specifications.
   2. When units or equipment are to be moved, disconnect and move to protected area to prevent damage to parts or components. Reset and reconnect at Contractor's expense.
   3. Contractor shall employ mechanics trained, proficient, and certified in the trade involved. The Contractor shall disconnect equipment only as scheduled in the approved construction schedule and when performing roofing work in the immediate area of the equipment. Each piece of equipment shall be fully operational immediately after reinstallation. Shut-down time for each piece of equipment shall be limited to timeframe designated by Owner. Prior to commencing any disconnections, the Owner shall be given forty-eight hours notice.
   4. Prior to commencing roofing work, the Contractor shall test equipment in the presence of Owner’s Representative. All deficiencies in operation including unusual noises will be noted in writing and shall become a matter of records. Upon completion of the reinstallation of equipment, it shall be retested by the Contractor in the presence of the Owner’s Representative. Any deficiencies which were not noted in the initial testing shall be corrected by the Contractor at his expense.
   5. Install equipment on top of curb or pre-manufactured support. Secure equipment hoods/covers to curb with grommetted fasteners spaced 12-inches (300mm) on-center, minimum two fasteners per side.
   6. Set equipment on top of pre-manufactured support and secure to support. Install support on a layer of heavy-duty protection pad on top of a cut section of modified bitumen protection pad.
   7. After installation of equipment support (if required), the unit shall be reset on the support. Reconnecting of pipe, conduit, wiring, and reactivation of the unit to its original condition shall be provided by Contractor. All conduit modifications, extension of ductwork, etc., shall be provided by Contractor at no additional cost to Owner. Equipment shall be installed level, plumb, and free of vibration and in accordance with manufacturer's installation practices.

8. Install set of braided stainless steel cables/wire ropes in opposing directions over top of equipment housings/hoods and secure through sides of curb cap flashing and into curb with appropriate fasteners.
9. Attach respective roof-top equipment in general accordance with the following table:

Curb Size and Equipment Type	Equipment Attachment	Number of No.14 Screws Each Side of Curb or Flange
12-inch X 12-inch curb with relief air hood	Hood attached to curb	2
12-inch X 12-inch relief air hood with flange	Flange attached to 22 gauge steel deck	3
24-inch X 24-inch curb with relief air hood	Hood attached to curb	5
24-inch X 24-inch relief air hood with flange	Flange attached to 22 gauge steel deck	8
24-inch X 24-inch curb with exhaust fan	Fan/hood attached to curb	3
36-inch X 36-inch curb with exhaust fan	Fan/hood attached to curb	3
5’-9” X 3’-8” curb with 2’-8” high HVAC unit	HVAC unit attached to curb	5

G. Curbs and Ducts:
   1. Secure and modify curbs, ducts, and other work which pass through roof as required to receive new roofing system.
   2. Seal joints in sheet metal ducts and vent hoods with reinforcing fabric and elastomeric coating. Apply elastomeric coating to exposed surfaces of ducts and vent hoods.

H. Condensate Lines: Raise and reroute existing condensate lines and supports as required. Provide positive drainage of piping. Reinstall existing and install new condensate lines at existing or new units where discharge is directed onto roof. Route lines to discharge into nearest drainage medium (i.e. drain, gutter, etc.).

I. Piping and Conduit Modifications:
   1. Schedule piping and unit downtime for equipment modifications to coordinate with Owner's operations. Switchover time shall be limited to meet Owner's requirements.
   2. Replace existing supports for units and associated piping with new supports.
   3. Provide temporary supports to maintain unit and piping in operational condition except during switchover.

4. Furnish new fittings, piping, and accessories to match existing to replace deteriorated, damaged, or non-functional components or to accommodate new unit elevation, where necessary.
5. Provide auxiliary make-up air units to supply HVAC needs during equipment downtime, when required.
6. Upon completion of roof installation, paint steel piping and replace or clean aluminum jacketing of insulated pipe.

J. Piping Supports:
1. Furnish and install new supports for piping (conduit, gas, water, condensate, etc.).
2. Install supports at maximum spacing of 10 feet (3m) on-center and within 2 feet (600mm) of changes in plane or direction. Space supports for piping 10-inches (250mm) in diameter or larger and multiple pipes 8 feet (2.4m) on-center.
3. Install over a layer of heavy-duty protection pad set on top of a layer of modified bitumen protection pad adhered to roof surface.

K. Existing Roof Drains:
1. Secure and modify drains to receive new roofing system.
2. Verify drain bowls and pipes are properly secured and sealed.
3. Remove, replace, lower, or raise drain bowl as required to accommodate new roofing system, including insulation and deck conditions.
4. Replace damaged, missing, or otherwise non-salvageable piping and drain components with new components. Replace plastic strainers with cast iron units.
5. Drill and tap existing drain bowls as required for complete assembly of drain. Secure clamp rings with stainless steel bolts and washers. Clamp rings to be secured throughout project. Wire brush, clean, and paint existing cast iron clamp rings and strainers to be reinstalled.
6. Paint new strainers and clamp rings prior to installation.
7. Water test each roof drain with inflatable plug. Position plug in leader so test will cover connection of pipe to bowl. Extend “test” water on top of roof membrane beyond clamping ring. Maintain “test” water for one hour while performing interior observations for water leakage. Replace drain bowl assemblies and associated piping that cannot be made watertight during leak test.

L. Plumbing Vents:
1. Extend plumbing vents or modify as necessary to accommodate new roof installation.
2. Provide pipe extensions and no-hub couplings where necessary to achieve minimum 8-inch (200mm) height above top of newly finished roof surface.
3. Utilize same material type and size as existing for new extension.

M. Sheet Metal Fabrications:
1. Remove and replace ferrous rooftop sheet metal fabrications to match existing.
2. Modify existing sleeves and umbrellas on existing equipment as scheduled.
3. Repair and renovate non-ferrous rooftop sheet metal fabrications as required for permanent watertight installation.
4. Paint sheet metal with metal primer

3.05 CLEANING:

A. Materials, equipment, and debris resulting from demolition operations shall become property of Contractor. Remove and dispose of demolition debris in accordance with applicable city, state, and federal laws at authorized disposal site.
B. Leave substrate clean and dry, ready to receive roofing system.

END OF SECTION 02 40 00

SECTION 07 22 00

ROOF BOARD INSULATION

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Installation of polyisocyanurate base insulation, tapered insulation crickets and sumps and crickets, and secondary/cover board insulation.

1.02 RELATED SECTIONS:

A. 02 40 00 - Minor Demolition and Renovation.
B. 07 52 00 - Modified Bitumen Membrane Roofing.
C. 07 62 00 - Sheet Metal Flashing & Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).
B. FM Global Approval Guide.
C. Underwriters Laboratories (UL): Building Materials Directory.
D. National Roofing Contractors Association (NRCA): The NRCA Roofing and Waterproofing Manual.
E. ASCE 7-10: "Minimum Design Loads for Buildings and Other Structures."
F. Polyisocyanurate Insulation Manufacturer's Association: Technical Bulletin 109 – "Storage and Handling Recommendations for Polyisocyanurate".

1.04 QUALITY ASSURANCE:

A. Regulatory Requirements:
   1. Classified by Underwriters Laboratories Inc. as Class A rated material.
   2. Follow local, state, and federal regulations, safety standards, and codes. When conflict exists, the more restrictive document shall govern.
B. Installation:
   1. Install in accordance with manufacturer's current published application procedures, general requirements of NRCA, and as supplemented by these documents.
   2. Consider roof system manufacturer's technical specifications part of this Specification and use as reference for specific application procedures.
   3. Install roof system in manner to resist minimum wind uplift pressures of 60 psf for the field of the roof; 90 psf in 8-feet wide perimeter zones; and 135 psf in 8-feet by 8-feet corners. Pressures are based on ASCE 7-10 and following criteria: 150 mph wind speed; Exposure B; Risk Category III-IV; and Safety Factor of 2.0.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Store materials in accordance with manufacturer's recommendations.
B. Outdoor Storage:
   1. Tarp and shield insulation from moisture and exposure to sun.
   2. Elevate insulation above substrate 4-inches minimum.
   3. Secure insulation to resist high winds.
   4. Do not use insulation which has been determined "wet" or which has been wet and has dried.
   5. Distribute insulation stored on roof deck to prevent concentrated loads that would impose excessive stress or strain on deck or structural members, or impede drainage.
   6. Remove manufacturer plastic shrink wrapping from materials prior to covering with protective tarps/canvas.

1.06 SUBMITTALS:

A. Product Data: Submit manufacturer’s product data sheets, providing descriptive data, dimensions, LTTR values, and other pertinent criteria for each material proposed for use in construction of roof assembly.
B. Samples: Provide physical examples of materials/components proposed for use to comprise the specified roof system.

1.07 SEQUENCING AND SCHEDULING:

A. Plan roof layout with respect to roof deck slope to prevent rainwater drainage into completed roofing.
B. Do not install more insulation than can be made watertight in same day.

1.08 PROJECT CONDITIONS:

A. Environmental Recommendations:
   1. Apply roofing and insulation in dry weather.
   2. Do not proceed with roof construction during inclement weather or when precipitation is predicted with 30 percent or more possibility.
   3. Do not apply insulation over wet or moist deck or in foggy conditions.
   4. Consider days when wind speeds are 30 mph or greater as "inclement weather" days.
B. Maintain on site equipment and material necessary to apply emergency temporary weather protection to incomplete work in event of sudden precipitation.

PART TWO - PRODUCTS

2.01 ROOF INSULATION:

A. Flat Stock Base Layer Insulation: Rigid, closed cell polyisocyanurate rigid board insulation utilizing non-chlorine/non-ozone depleting blowing agent, bonded to non-asphaltic coated fiberglass facers meeting ASTM C 1289, Type II, Class 2, Grade 2; maximum board size is 4 feet by 4 feet; 2.5-inch thickness such as "ACFoam-III" by Atlas Roofing Corp, “Paratherm CG” by Siplast, “FlintBoard ISO Cold" by Certainteed, "Resista" by Firestone, "ENRGY3 CGF" by Johns Manville, or approved equal.

B. Tapered Insulation: Rigid, closed cell tapered polyisocyanurate rigid board insulation utilizing non-chlorine/non-ozone depleting blowing agent, bonded to non-asphaltic coated fiberglass facers meeting ASTM C 1289, Type II, Class 2, Grade 2; to form crickets between roof drains; maximum board size is 4 feet by 4 feet; tapered to provide 1/4-inch per foot resulting slope, such as "Tapered AC Foam III” by Atlas, “Tapered Paratherm CG” by Siplast, "Tapered FlintBoard ISO Cold" by Certainteed, "Tapered Resista" by Firestone, "Tapered ENRGY 3 CGF" by Johns Manville, or approved equal.

C. Cover Board: Moisture-resistant, 1/2-inch thick gypsum core roof board such as “SecuRock” by US Gypsum, “DensDeck Prime” by Georgia-Pacific, or approved equal.

D. Tapered Edge Strip: Tapered perlite complying with ASTM C-728, to be used for tapered edge strips, size 1/2-inch (13mm) to 1-1/2-inch (37.5mm) thick by 6-inches (150mm) to 24-inches (600mm) wide such as “Tapered Fesco Edge Strip” by Johns Manville.

2.02 RELATED MATERIALS:

A. Heat Resistant Insulation: Molded hydrous calcium silicate-based or mineral wool-based heat resistant rigid pipe insulation, 2-inches in thickness and sized for installation around circular/tubular element such as “Sproule WR-1200” by Johns Manville or “Thermafiber Pro Section WR” by Owens Corning

B. Compressible Fill Insulation: Foil or paper faced compressible fiberglass batten roll insulation of proper size and thickness to insert at openings at penetrations, perimeters, and curbs such as manufactured by Owens Corning.

C. Low-Rise Foam Insulation Adhesive:
   1. Single-component Moisture-cured Adhesive: ASTM D-2126, dispensed from portable pressurized containers, such as “Insta-Stik Professional Roofing Adhesive" by Dow Chemical Co., “Para-Stick” by Siplast, or approved equal
   2. Dual-component Reaction-cure Adhesive: Two-part spray-applied low-rise urethane foam adhesive such as "OlyBond 500" by OMG, “JM Two-Part Urethane Adhesive” by Johns Manville, “Twin Jet” by Firestone, or approved equal.

D. Base Sheet: Asphalt impregnated glass fiber venting base sheet, ASTM D 4897, Type II, for lightweight insulating concrete substrate such as “Venting Base Sheet” by Firestone, “Ventsulation Felt” by Johns Manville, or as approved by manufacturer to meet specified wind uplift resistance and warranty requirements.
E. Base Sheet Fasteners: Lightweight Insulating Concrete Substrate: 1.8-inch long galvalume steel tube fastener with locking steel staple with 2.7-inch (67.5mm) diameter rib reinforced disc such as “Twin Loc Nail” by TruFast, “Oly-Lok” by OMG, or approved equal.

PART THREE - EXECUTION

3.01 EXAMINATION:

A. Roof system manufacturer's representative shall inspect roof deck and associated substrates and provide written acceptance of conditions.
B. Manufacturer's approved roofing contractor shall inspect and approve deck and substrates.
C. Roofing contractor shall examine roof deck and related substrates and verify that there are no conditions that would prevent roof system manufacturer's approved application of roof system. These conditions include, but are not limited to, the following:
    1. Inadequate support or anchorage of decking or substrates to structure.
    2. Accumulations of moisture.
    3. Tears, holes, cracks, or punctures.
    4. Ridges, uneven conditions, or gaps.
    5. Rust or other forms of deterioration.
    6. Presence of foreign materials.
D. Start of work constitutes acceptance of substrate and site conditions.

3.02 PROTECTION:

A. Provide special protection from traffic on yet to be removed roofing and newly installed roof materials.

3.03 PREPARATION:

A. Do not install insulation until defects in roof deck and substrates are corrected in order to meet roof system manufacturer's requirements and to ensure that deck conditions will not restrict roof drainage.
B. Broom sweep and clean areas to receive new insulation.

C. Perform pull-out resistance tests in general accordance with ANSI/SPRI FX-1-2006 with each of the specified base sheet fasteners on the existing lightweight insulating concrete fill substrate. In addition, perform bonded adhesion tests in general accordance with ANSI/SPRI IA-1-2005 of the specified polyisocyanurate insulation direct to the lightweight insulating concrete fill with proposed foam adhesive. Provide results of the tests to Consultant/Engineer and manufacturer for determination of method of attachment.

3.04 INSTALLATION:

A. Insulation - General:
   1. Install specified insulation continuous across the roof deck in general accordance with manufacturer's guidelines.
   2. Stagger end joints of insulation boards 1/2 of overall length of board.
   3. Butt joints tightly allowing no more than 1/4-inch (6mm) wide gaps between units. Fill joints between adjacent boards with like insulation or foam adhesive.
   4. Do not use warped, bent, or otherwise damaged insulation boards.
   5. Field cut and fit insulation at penetrations, curbs, and walls.
   6. After installation of initial layer of insulation, install subsequent layers of insulation directly over preceding layer.
   7. Stagger all joints (side and end) between layers of insulation.
   8. Field cut tapered insulation boards to create crickets at upslope sides of curbs and between drains to direct water to drainage medium.
   9. Install tapered edge strips at changes in elevations, edges of crickets, and other locations to create monolithic and uniform substrate for installation of roof membrane.
   10. Install separation sheet on top of lightweight insulating concrete fill prior to placement of insulation board as required by manufacturer.

B. Base Sheet Application: On designated areas, apply one layer of base sheet beginning at low edge and lapping each course 4-inches (100mm) along sides and 6-inches (150mm) at ends. Fasten side and end laps with fasteners spaced 7-inches (175mm) on-center. Down longitudinal center of each base sheet, install two rows of fasteners spaced 7-inches (175mm) on-center with each row staggered and spaced 12-inches (300mm) apart. The number of fasteners shall be increased within a minimum 6-foot wide strip at the perimeter (four rows of fasteners [one at side lap, three in field of sheet, equally spaced]) and within a 6 foot by 6 foot area in the corners (five rows of fasteners [one at side lap, four in field of sheet, equally spaced]); or as required to meet the specified wind uplift resistance.

C. Adhered Layers of Insulation:
   1. On designated areas, adhere layers of insulation to substrate.
   2. Stagger end joints of insulation boards 1/2 of overall length of board. Stagger joints of subsequent insulation layers from underlying insulation layer.
   3. Butt joints of insulation layers tightly allowing no more than 1/4-inch (6mm) wide gaps between units. Fill joints or gaps greater than 1/8-inch between adjacent boards with low-rise foam adhesive.

4. Do not use warped, bent, or otherwise damaged insulation boards. Discard damaged boards.
5. Field cut and fit insulation boards at penetrations, curbs, and walls. Field cut tapered insulation boards to create crickets at upslope sides of curbs and to form crickets between drains.
6. Install and adhere cover board over base and tapered insulation layers to serve as substrate to receive roof membrane in accordance with manufacturer's guidelines and as specified herein.
7. Ribbon Application of Low-rise Foam Adhesive: Dispense 3/4-inch to 1-inch (19mm to 25mm) diameter continuous ribbon of adhesive placed 3-inches (75mm) inside each edge/side of the insulation board in picture-frame fashion. Dispense remaining ribbons of adhesive between “picture-frame” placed adhesive ribbons spaced 12-inches (300mm) on-center in the field of the roof, spaced 6-inches (150mm) on-center within an 8-feet wide area along the roof perimeters, and spaced 3-inches on-center within an 8-feet by 8-feet area at corners of roof.
8. Firmly set insulation boards in the ribbons of foam adhesive following application of the adhesive when adhesive has risen to proper height and walk-in the insulation to spread the adhesive ribbons, ensuring maximum contact. Do not push or slide insulation into position. Set weighted objects on sides, ends, and corners of boards until insulation is firmly attached (approximately 20 to 45 minutes).
9. On additional insulation layers, dispense ribbons of adhesive in direction perpendicular to the direction of the beads that were dispensed on the underlying layer.
10. Fill voids or open joints in top layer of insulation and cover board with spray-foam adhesive to provide monolithic surface to receive new membrane.
11. Adhere partial boards and tapered edge strips with adhesive ribbon positioned in picture-frame fashion along perimeter of board and remaining adhesive ribbons spaced in accordance with location on roof (field, perimeter, or corner).

D. Heat Exhaust Vents:
   1. Install heat resistant insulation around existing heat exhaust flue, vent pipes, or other penetrations that experience elevated operation temperature.
   2. Install new sheet metal base around insulation and strip flange into new roof.

E. Insulation Filler: Install compressible fiberglass insulation at openings in deck at penetrations, perimeters, expansion joints, and/or curbs.

3.05 CLEANING:

A. Remove debris and material wrappers from roof to dumpster daily. Leave insulation clean, dry, and ready to receive new roofing.

3.06 ADJUSTING:

A. Remove damaged insulation and install acceptable new units before installation of roof system.

3.07 PROTECTION:

A. Provide special protection from traffic on completed work.

END OF SECTION 07 22 00

SECTION 07 52 00

MODIFIED BITUMEN MEMBRANE ROOFING

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Installation of two-ply modified bitumen roof membrane and related flashings.

1.02 RELATED SECTIONS:

A. 02 40 00 - Minor Demolition and Renovation Work.
B. 07 22 00 - Roof Board Insulation.
C. 07 62 00 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).
B. FM Global Approval Guide.
C. Underwriters Laboratories (UL): Building Materials Directory.
D. National Roofing Contractors Association (NRCA): The NRCA Roofing and Waterproofing Manual.
E. ASCE 7-10: "Minimum Design Loads for Buildings and Other Structures."
F. Cool Roof Rating Council (CRRC).
G. SPRI: Application Guidelines for Modified Bitumen Roofing Systems.
H. FM Global Property Loss Prevention Data Sheets
   1. DS 1-28 “Wind Design”.
   2. DS 1-29 “Roof Deck Securement and Above-deck Roof Components”.
   3. DS 1-33 “Safeguarding Torch-applied Roof Installations”
   4. DS 1-49 “Perimeter Flashing”.

1.04 QUALITY ASSURANCE:

A. Application:
   1. Approved by manufacturer of accepted roofing system.
   2. A single applicator with a minimum of five years previous successful experience in installations of similar systems.
   3. Demonstrated successful installation in three other comparable buildings will be preferred. Submit subcontractor qualification statement.
B. Manufacturer Requirements:
   1. Roof Membrane Assembly: Classified by Underwriters' Laboratories, Inc. as a Class A roof covering with no slope limitations.
   2. Roof Membrane Assembly: Classified by FM Global as a Class 1, approved assembly and Class 1-SH (Severe Hail) exposure.
   3. Manufacturer to have direct actual in-house experience in the manufacturing of the specified or similar products for a period of a minimum of twenty years.

4. Manufacturer to have documented project history of installation of the specified or similar products in the United States for a period of a minimum of twenty years.
5. Manufacturer to provide authorized documentation of the physical/ mechanical properties from the testing laboratory of Manufacturer of the actual materials utilized for the project indicating compliance with applicable ASTM standards D 5147 and D 6298.
6. Manufacturer's top membrane ply product shall be tested by CRRC and meet the following requirements: Initial Solar Reflectance of 0.70 (minimum) and Thermal Emittance of 0.75 (minimum).
7. Manufacturer's products shall comply with the following standards:
   a. Polyester/Fiberglass composite reinforcement SBS modified bitumen sheet, ASTM D 6162, Grade S or G, Type 1 – 3.
   b. Fiberglass-reinforced SBS modified bitumen sheet, ASTM D 6163, Type 1 – 3, Grade S or G.
   c. Polyester-reinforced SBS modified bitumen sheet, ASTM D 6164, Type 1 – 3, Grade S or G.
   d. Polyester-reinforced APP modified bitumen sheet, ASTM D 6222, Type 1 or 2, Grade S or G.

C. Regulatory Requirements:
1. Classified by Underwriters' Laboratories, Inc. as a Class A roof covering.
2. Classified by FM Global as a Class 1A assembly.
3. Follow local, state, and federal regulations, safety standards and codes.
4. Install roof system in manner to resist minimum wind uplift pressures of 60 psf for the field of the roof; 90 psf in 8-feet wide perimeter zones; and 135 psf in 8-feet by 8-feet corners. Pressures are based on ASCE 7-10 and following criteria: 150 mph wind speed; Exposure B; Risk Category III-IV; and Safety Factor of 2.0.
5. Refer to applicable building codes for roofing system installation requirements and limitations. When a conflict exists, the more restrictive document will govern.
6. Provide tested and approved system to meet or exceed the specified wind uplift pressures.

D. Laboratory Testing and Samples:
1. At Owner's request, obtain field samples of the completed roof membrane, laps, and/or assembly.
2. Take samples at locations designated by Owner's Representative and test for compliance with the requirements of the Contract Documents and with manufacturer's published performance criteria.
3. Assume all costs for extraction and patching of all samples. Owner shall assume all costs for testing of field samples.
4. Correct all deficiencies in accordance with the manufacturer's recommended procedures at no cost to Owner.
5. If for any reason, areas that are tested by Owner fail to meet manufacturer's requirements, then all subsequent expense for retesting of those areas will be borne by Contractor.

E. Installation:
   1. Install in accordance with the manufacturer's current published application procedures, the general recommendations of the National Roofing Contractor's Association, and as supplemented by these documents.
   2. Follow Underwriters Laboratories requirements acceptable for use with specified products or systems.
   3. During installation and upon completion of installation, an inspection shall be conducted by a technical representative of the manufacturer to certify that roofing system has been installed according to manufacturer's most current published specifications and details.
   4. All roofing shall be as described in this Section and shall be provided and/or approved by roof system manufacturer.
   5. Obtain written approval from the manufacturer for any materials not manufactured or provided by manufacturer stating that materials are acceptable and are compatible with other materials and systems required.
   6. Personnel designated to utilized propane torching equipment to install roofing materials must have current CERTA safety certification issued by MRCA.
F. Make no deviations from this Specification or the approved shop drawings without the prior written approval of the Architect, Owner’s Representative, and roof membrane manufacturer.
G. Perform entire work of this Section in accordance with the best standards of practice relating to the trades involved.

1.05 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.
B. Store materials in accordance with manufacturer's recommendations. Store rolled goods on end on clean raised platforms. Store other materials in dry area, protected from water and direct sunlight, and maintain at a temperature of 60 to 80 degrees Fahrenheit (16 to 27 degrees Celsius).
C. Provide continuous protection of materials against deterioration.
D. Materials Stored on Roof Levels:
   1. Distribute materials stored on roof to prevent concentrated loads that would impose excessive strain on deck or structural members or impede drainage. Position materials stored on roof over structural support beams and/or columns.
   2. Positively secure materials and protective covers to prevent displacement by wind.
   3. Tarp for protection from exposure.
   4. Cut and remove manufacturer's plastic "shrink wrapping" from materials during storage.

1.06 SUBMITTAL:

A. General:
   1. Material manufacturer's roof system letter indicating the following: proposed roof system components; general installation requirements (adhesive coverage rate, fastener pattern layout, etc.); roof system uplift pressure resistance; supporting independent laboratory test report indicating respective test pressures; and warranty coverage to be provided.
   2. Material manufacturer's written approval/acceptance of specified roof system and issuance of specified warranty for project.
   3. Shop drawings of details.
   4. Manufacturer's product data sheets with Safety Data Sheets (SDS) on each material proposed for usage.
   5. Sample of warranty that is to be issued upon project completion.
   6. Samples of products proposed for use.

B. Shop Drawings:
   1. Shop drawings which illustrate the Work, showing fabrication, layout, setting, or installation details.
   2. Prepare shop drawings for details that are proposed for the project. Indicate on a roof plan, the proposed location of detail presented on shop drawing.
   3. Indicate joints, types, and locations of fasteners, shapes, sizes, expansion joints, special conditions, and installation procedures for each flashing condition. Note critical dimensions, gauge, and finish of sheet metal for each flashing condition.
   4. Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work.
   5. Provide drawings depicting insulation board attachment for field, perimeter, and corner zones.

C. Product Data: Submit manufacturer's catalog sheets, providing descriptive data for each material proposed for use in construction of roof assembly and related flashings and components.

D. Samples: Provide physical examples of materials/components proposed for use to comprise the specified roof system.

1.07 PROJECT CONDITIONS:

A. Existing Conditions: Examine existing building and existing roofing and decking to determine physical conditions that affect removal of existing roofing and installation of new roofing and decking.

B. Environmental Requirements:
   1. Apply roofing in dry weather.
   2. Do not remove existing roofing and flashing in inclement weather or when rain is predicted (30% or more possibility).
   3. Do not apply materials when ambient temperature is below 40 degrees Fahrenheit (5 degrees Celsius).
   4. Do not expose material to a constant temperature in excess of 180 degrees Fahrenheit (82 degrees Celsius).

C. Protection:
   1. Provide special protection or avoid heavy traffic on completed work when ambient temperature is above 80 degrees Fahrenheit (27 degrees Celsius).
   2. Restore to original condition or replace work or materials damaged during handling or roofing materials.

D. Emergency Equipment: Maintain on-site equipment necessary to apply emergency temporary edge seal in the event of sudden storms or inclement weather.

1.08 SEQUENCING AND SCHEDULING:

A. Do not remove more existing roofing in one day than can be replaced with new roofing and flashing in same day.

1.09 WARRANTY:

A. Contractor shall submit to Owner prior to final payment, two copies of the following warranties:
   1. Roofing Material Manufacturer's Warranty: Project shall be installed in such a manner that the roof system manufacturer will furnish a written full-system (including, but not limited to, insulation layers, fasteners, adhesives, flashing sheets, etc.), no dollar limitation, labor and material warranty agreeing to replace/repair defective materials and workmanship, including leakage of water, abnormal aging or deterioration of materials, and other failures of the materials to perform for a warranty period of twenty years after date of written final acceptance by Owner.
   2. Contractor's Warranty: In addition, Contractor shall furnish a written warranty agreeing to repair/replace defective installation and workmanship causing leakage of water, deterioration of materials, and other failures of the installed system, sealants, painting coatings and related work on this project, to perform for a warranty period of two-years after date of written final acceptance by Owner.

PART TWO - PRODUCTS

2.01 MANUFACTURER:

A. Acceptable SBS Modified Bitumen Roofing Manufacturers:
   1. Siplast.
   2. Firestone.
   3. Johns Manville.
   4. Or approved equal.

B. Acceptable APP Modified Bitumen Roofing Manufacturers:
   1. Derbigum.
   2. Certainteed.
   3. Firestone.
   4. Or approved equal.

2.02 SHEET MATERIALS:

A. SBS Membrane System:
   1. Membrane Base Ply: ASTM D 6164, Type I, Grade S; smooth-surfaced, polyester-reinforced, SBS modified bitumen sheet, suitable for application with cold-adhesive and/or heat-welding/torching methods such as "Paradiene 20 PR TG" or "Paradiene 20 PR" by Siplast, "SBS Poly Torch Base" or "SBS Poly Base" by Firestone, or "DynaWeld 180S" or "DynaBase PR" by Johns Manville, or approved equal.
   2. Membrane Top Ply: White-colored granule-surfaced, fiberglass/polyester reinforced, SBS modified bitumen sheet suitable for application with torch-application/heat welding such as "Paradiene 30 HT FR TG BW" by Siplast, "SBS FR Torch UltraWhite" by Firestone, "DynaWeld Cap 180 CR FR G" by Johns Manville.
   3. Base Flashing System: One-ply of specified membrane base ply and one ply of specified top ply or other granule-surfaced (color to match cap sheet) polyester-reinforced SBS modified bitumen flashing sheet.

B. APP Membrane System:
   1. Membrane Base Ply: ASTM D 6222, Type 1 or 2, Grade S; smooth-surfaced, polyester-reinforced APP modified bitumen sheet suitable for application with cold adhesive and/or heat welding/torching such as "DerbiBase HV" by DerbiGum, "Flintlastic STA" by Certainteed, or "APP 160" by Firestone.
   2. Membrane Top Ply: ASTM D 6222, Type 1 or 2, Grade G; white-colored surfacing, polyester-reinforced, APP modified bitumen sheet suitable for application with cold adhesive and/or heat welding/torching methods such as "DerbiColor P CR FR" by DerbiGum, "Flintlastic GTA-FR with Cool Star" by Certainteed, or "APP 180 FR UltraWhite" by Firestone.
   3. Base Flashing System: One ply of specified membrane base ply and one ply of specified membrane top ply.

2.03 RELATED MATERIALS:

A. Asphalt Primer: ASTM D 41.
B. Edge Sealant: Rubberized asphaltic plastic roof cement that is gun-grade version for sealing terminations of cap sheet such as "PerFlash" by DerbiGum, "Elastomastic 209" by Henry Co, or "#19 Ultra Rubberized Flashing Cement" by Karnak.
C. Elastomeric Plastic Roof Cement: Rubberized plastic roof cement such as "PerFlash" by DerbiGum to be used for temporary seals of flashings, embedding flanged sheet metal flashings, and three coursing of seams, termination bars, and cuts in modified bitumen sheets.
D. Cold Process Adhesive: Low VOC or solvent free asphaltic or polymeric based adhesive suitable for use with modified bitumen sheets such as "Permastic" by DerbiGum, "SFT Adhesive" by Siplast, "LiquiGard Adhesive" by Firestone, "MBR Bonding Adhesive" by Johns Manville, or approved equal.

E. Cant Strip: 3-5/8-inches (92mm) by 1-1/2-inches (38mm) composite cant strips of perlite such as "FesCant Plus" by Johns Manville or "Energy Guard Perlite Cant Strip" by GAF with field-cut strips of cover board with chamfered ends or triangular-shaped modified bitumen cant strip comprised of cut sections of “DerbiGum GP”, 2-1/4-inch X 2-1/4-inch X 3-1/4-inch in size such as “Double DerbiCant” by DerbiGum..
F. Walk Pads/Protection Pads: Pre-manufactured sheet or cut sections of granule surfaced polyester-reinforced modified bitumen sheet, extending minimum 2-inches (50mm) beyond edge of overlying element, with rounded corners and to have contrasting granule color from top ply such as “DerbiGum FR” by DerbiGum, “ParaTred” by Siplast, “DynaTred” by Johns Manville, or approved equal.
G. Heavy-duty Protection Pad: Asphaltic composite board with mineral surfacing, 3/4-inch thick, (3’ X 3’) (3’ X 5’) size to suit application, such as “Whitewalk” by W.R. Meadows (2555 N.E. 33rd Street, Fort Worth, Texas 76111, 817/834-1969) or panel composed of recycled rubber particles such as “Roof-Gard Pads” by Humane Manufacturing, LLC (805 Moore Street, Baraboo, Wisconsin 53913, 800/369-6263), “Duo-Pad” by W.R. Meadows (1/2-inch by 30-inch by 4 foot) (3/4-inch by 33-inch by 4-foot), or “Walkway Roof Pads” by RB Rubber Products, Inc. (904 N.E. 10th Avenue, Portland, Oregon 97128, 503/472-4691).
H. Liquid Flashing System: Fluid-applied reinforced flashing system to apply around roof penetrations, low-profile flashing substrates, at roof drains, or other suitable locations that would be included in the warranty coverage for the roof membrane system and match color of finish ply such as "SeamFree" by Johns Manville, "Parapro" by Siplast, “DerbiFlash” by Derbigum, or approved equal.

2.04 MISCELLANEOUS MATERIALS:

A. Best grade or quality approved by the manufacturer for the specific application.

PART THREE - EXECUTION

3.01 EXAMINATION OF SURFACES

A. Examine substrate, roof deck, and related surfaces, and verify that there are no conditions such as inadequate anchorage, foreign materials, moisture, ridges, or other conditions that would prevent satisfactory installation of the roofing system.
B. Correct or complete any condition requiring correction or completion prior to installation of the roofing system. Notify Owner's Representative in writing of unacceptable conditions.
C. Verify the location of all interior ducts, electrical lines, piping, conduit, and/or similar obstructions. Perform all work in such a manner as to avoid contact with the above-mentioned items.
D. Verify insulation is installed correctly.
E. Start of work under this Part Three constitutes acceptance of deck substrate and site conditions.

3.02 PREPARATION:

A. Do not stockpile debris on roof surface.
B. Promptly remove debris each day. Use chutes, hoists, or other equipment to transfer debris from roof surface to disposal container.
C. Cleaning:
   1. Verify that debris has been completely removed.
   2. Clean roof insulation with stiff bristle broom and forced-air blower immediately prior to base ply application.

3.03 APPLICATION

A. Prior to roof membrane installation, seal all openings, projections, and penetrations in the substrate to prevent material or debris entry into the building. Correct damage to the building or interior components caused by work at Contractor's sole expense.
B. Membrane Installation - General:
   1. Apply roofing in accordance with roofing system manufacturer's instructions and the following requirements. Apply roofing immediately following application of insulation as a continuous operation.
   2. The overall appearance of the finished roof application is a standard requirement for this project. Make necessary preparations, utilize recommended application techniques, apply specified materials, and exercise care to ensure finished application is acceptable to Consultant and Owner.
   3. When applicable, install sheet materials using adhesives applied to substrate for adhering the field of the sheet. Side laps and end laps shall be fused together using electric-operated hot-air welding equipment suitable for use with modified bitumen materials such as provided by Cadillac Products, Leister, or other suitable equipment.
   4. Prime top and bottom of metal surfaces, concrete surfaces, and masonry surfaces to receive roofing with a uniform coating of asphalt primer, at a nominal rate of one-gallon (3.8 liters) per 100 square feet (9.29 square meters).
   5. Place cant strips on top of substrate to form continuous monolithic substrate at walls and curbs. Nail wood cants to nailer and to wall or vertical nailer, where possible. Secure fibrous cants by embedding in ribbons of low-rise foam adhesive. Miter cut cant strips to form continuous substrate at corners. Adhere cut piece of roof cover board in low-rise foam adhesive over top of fibrous cant.
   6. Lay all layers of roofing free of wrinkles, creases, or fishmouths. Exert sufficient pressure on the roll during application to ensure prevention of air pockets.
   7. Lay layers of roofing perpendicular or parallel to the slope of the deck as recommended by manufacturer.
   8. Install roof system configuration and components as required to meet the requirements of the testing assembly for the respective proposed roof material manufacturer.

C. Membrane Application - Base Ply:
   1. Cold Adhesive Application Option: Apply one ply of modified bitumen base ply over substrate in uniform continuous application of cold process adhesive. Apply adhesive at a nominal rate of 1-1/2 gallons to 2-1/2 gallons (5.71 liters to 9.5 liters) per 100 square feet (9.29 square meters), depending on the substrate (base sheet or insulation). Keep the adhesive applicator in close proximity to the material roll, maximum 2 feet (.7m). Exert sufficient pressure on roll during application. Roll field of sheet after initial installation of base ply with weighted lawn/linoleum roller. Heat-fuse the side and end lap seams of base ply with controlled hot-air equipment.
   2. Heat-Fusing Application Option: Apply one ply of modified bitumen base ply over substrate using heat-fusing methods with hot-air gun equipment suitable for modified bitumen sheets. Apply heat evenly across the front face and full width of the roll while pulling roll forward and unrolling roll uniformly with an even downward pressure. Apply heat to roll until the bitumen back coating reaches the desired application temperature, resulting in complete melting of the burn-off film, a glossy appearance of the back coating, and an approximate 1/4-inch (6mm) to 1/2-inch (13mm) bitumen flow from edge of sheet. Exert sufficient pressure on roll during application. Do not stand on the subject sheet during the installation process.
   3. Fully adhere membrane base ply to base sheet or insulation and have a minimum of 3-inch (75mm) side laps and 6-inch (150mm) end laps. Stagger end laps of adjacent sheets of membrane base ply a minimum of 3 feet. Extend field sheet of membrane base ply to top edge of cant.
   4. Complete membrane base ply application over respective roof area prior to application of membrane top ply. Apply additional ply of membrane base ply in low areas or areas that may be subjected to ponding water or to promote positive drainage.
   5. Apply a patch over areas of base ply with areas of physical damage or other defects. Patch to be the full width of membrane base ply and extend a minimum of 2-inches (50mm) beyond the defect in each direction.
   6. Check lap seams and seal unbonded or discontinuous seams using a heated steel trowel.

D. Base Flashing Application - Base Ply:
   1. Install and complete application of base ply of flashing each day base ply of membrane is installed. Install base ply flashings at curbs and parapet walls.
   2. Install first ply of base flashing extending horizontally 4-inches (100mm) beyond edge of cant or sheet metal flashing flange and vertically to top edge of curb, wall, or minimum 4-inches (100mm) above the top of the cant.
   3. Length of base flashings shall be maximum 6-feet (2m). Lap ends of base flashings 4-inches (100mm), minimum. Seal top edge of base flashing on a daily basis with a continuous troweling of elastomeric roof cement.
   4. Check lap seams and seal unbonded or discontinuous seams using a heated steel trowel.

5. For wood substrate, mechanically attach a base sheet 8-inches (200mm) on-center in all directions and along lap seams, overlapping adjacent sheets 4-inches (100mm), minimum. Adhere modified bitumen base ply flashing to base sheet.
6. Where existing substrate is deemed unacceptable to install new materials, attached plywood or acceptable gypsum sheathing to serve as new substrate for flashing membrane.

E. Strip-in Flashing:
1. Prime top and bottom of metal flanges and other sheet metal components completely and allow to dry prior to installation.
2. After membrane base ply has been applied, install metal flange flashings according to Section 07 62 00 - Sheet Metal Flashing and Trim. Strip-in flange/metal with strips of base flashing (base ply) concealing entire flange or horizontal surface of metal flashing and extending a minimum of 4-inches (100mm) beyond edge of flange/metal and heat-fusing strip-in to base ply.

F. Membrane Application - Top Ply:
1. Unroll top ply and cut roll length in half approximately 15-foot lengths. Lay cut sections of top ply with underside exposed to allow the sheet to relax prior to application. Prior to application, re-roll "relaxed" sheet using insert provided with roll.
2. Beginning at the low point on the roof, fully adhere membrane top ply to membrane base ply with minimum of 3-inch (100mm) side laps or width of selvage edge and 6-inch (150mm) end laps. Extend membrane top ply to top edge of cant. Apply each sheet directly behind applicator. Stagger side laps of top ply a minimum of 12-inches (300mm) from side laps of base ply.
3. Cold Adhesive Application: Apply modified bitumen top ply in uniform continuous application of cold process adhesive. Apply adhesive at a nominal rate of 1-1/2 gallons to 2-1/2 gallons (5.71 liters to 9.5 liters) per 100 square feet (9.29 square meters. Keep the adhesive applicator in close proximity to the material roll, maximum 2 feet (.7m). Exert sufficient pressure on roll during application. Roll field of sheet after initial installation of top ply. Heat-fuse the side and end lap seams of the cap sheet with hot-air gun equipment.
4. Heat-Welding/Fusing Application: Apply heat evenly across the face and full width of the roll while unrolling roll uniformly with an even downward pressure. Apply heat to roll using hot-air equipment until the bitumen back coating reaches the design application temperature, resulting in complete melting of the burn-off film, a glossy appearance of the back coating, and an approximate 1/4-inch (6mm) to 1/2-inch (13mm) bitumen flow from edge of sheet. Roll lap seams with steel roller immediately upon fusing/ mating of the sheets.
5. While installing membrane top ply, provide proper protection or method during application to prevent contamination, soiling, charring, or marring the finish surfacing of previously installed sheet. Exert sufficient downward pressure on roll during application.

6. During end lap application, trim the inside corner along the selvage edge of the underlying sheet at the end of the roll. The trimmed area shall be the width of the selvage edge and extend downward from the end of the roll to the outer side of the roll in a linear direction approximately 5-1/2-inches (138mm) from end of roll. Trim outside corner of membrane top ply at end laps to provide rounded finished corner. Remove surfacing or de-granulate areas of underlying top ply to receive overlapped portion of adjacent sheet. Pre-heat the subject area of the underlying sheet so that surfacing material can be removed or that granules can be "depressed" or sunk into the compound and the bitumen compound exudes up through the granules to result in a bituminous material-to-bituminous material contact.
7. Embed white-colored granules into bituminous bleed-out along edges of cap sheet to provide monolithic surface color.
8. Install membrane top ply so that end laps of every other sheet are aligned.
9. Apply a patch over areas of membrane with displaced/dislodged granules/ surfacing or other surface discoloration or defects. Patch shall be the full width of membrane top ply and extend a minimum of 2-inches (50mm) beyond the defect in each direction. Round corners of membrane patches.
10. Apply additional finish material, color to match top ply, over stains, soiling, and other areas of the top ply with displaced or discolored surfacing.
11. Check lap seams and seal unbonded or discontinuous seams using a heated steel trowel.
12. Apply membrane top ply and terminate at the rise in the metal component. Apply a continuous bead of edge sealant along edge terminations of modified bitumen sheet (i.e. flashing flanges, exhaust vents, metal edge, etc.). Bead of edge sealant shall match height of top sheet surfacing and shall be "canted" to shed water. Embed loose granules or coat with elastomeric coating, color to match top ply, into newly installed edge sealant.

G. Base Flashing Application - Top Ply:
1. Apply top ply of flashings only after membrane top ply is in place at curbs and parapet walls.
2. Remove surfacing or de-granulate granulated surfaces on top ply sheet of membrane and flashings to receive flashing top ply. Pre-heat the subject area of the underlying surfaced sheet so that surfacing can be removed or so that granules can be "depressed" or sunk into the compound and the bitumen compound exudes up through the granules to result in a bituminous material-to-bituminous material contact.
3. Cut modified bitumen flashing membrane to extend a minimum of 4-inches (100mm) above the top of the membrane top ply covering the cant. The overall minimum height of the top of the flashing membrane above the top of the roof surface is 8-inches (200mm). Extend flashings to full height of vertical substrate.
4. Extend the flashing membrane horizontally 4-inches (100mm) onto the field of the roof surface beyond the bottom edge of the cant strip.

5. Cut flashing from roll using selvage edge as lap seam for adjacent sheets, resulting in sheet lengths of nominal 3 feet (1m). Lap ends a minimum of 4-inches (100mm) and stagger laps from laps of underlying plies.
6. Fully adhere and conform top ply of flashing to substrate. Extend bleed-out of applied base flashing a minimum of 1/2-inch (13mm) beyond the side or end lap. "Broom-in" foil-faced flashing ply immediately upon installation using a damp sponge mop. Embed granules or coat bleed-out with aluminum dust/elastomeric coating, to match finish surfacing.
7. Walls: Mechanically attach top edge of modified bitumen membrane flashing with termination bar and appropriate fasteners spaced 6-inches (150mm) on-center. Apply three-coursing consisting of an initial continuous troweling of elastomeric plastic roof cement, embedded reinforcing fabric, and a secondary application of elastomeric plastic roof cement along and concealing the top edge of base flashing and termination bar. Utilize duct/masking tape, or similar tape, to provide line of demarcation for three-coursing located parallel and 2-inches below termination bar.
8. For wall substrates greater than 12-inches (300mm) in height, install base flashing to a height of 12-inches (300mm) as specified. For remaining wall height, Adhere modified bitumen flashing to substrate and overlap wall flashing on top edge of base flashing a minimum of 4-inches (100mm). Install appropriate fasteners in vertical lap seams spaced 6-inches (150mm) on-center. Apply three-coursing over completed lap seams.
9. Apply cut section of modified bitumen over corners of curb flashings to conceal cuts in flashing material at corner laps.
10. Install flashing sheets on adjoining perpendicular sides (outside corners) of curbs or walls so that outside corners of flashing sheet align and are rounded.
11. Curbs: For curbs with non-removable hoods/covers/units, extend flashing to full height of curb, secure with termination bar and appropriate fastener, and apply three-coursing of plastic cement and reinforcing fabric over top edge of sheet. Utilize duct/masking tape, or similar tape, to provide line of demarcation for three-coursing located parallel and 2-inches below termination bar. For curbs with removable hoods/covers/units, wrap flashing sheet over top of curb and secure to top or inside of curb with angle termination bar and appropriate fasteners spaced 6-inches (150mm) on-center.

H. Metal Flanged Flashings:
1. Apply membrane top ply and terminate at the rise in the metal component.
2. Apply a target around penetrations or utilize flashing method to conceal cuts in the membrane top ply.
3. Apply a continuous bead of edge sealant along edge terminations of modified bitumen sheet (i.e. flashing flanges, exhaust vents, metal edge, etc.). “Cant” bead of edge sealant to shed water. Embed loose granules in newly installed edge sealant and apply coating to match finish of top ply, where applicable.

I. Liquid-Flashings
   1. Apply liquid flashing systems in accordance with the manufacturer's application guidelines at select and designated locations where conventional flashings cannot be installed to meet manufacturer's warranty requirements and around roof drain sump areas.
   2. Clean penetrating element or approved substrate to receive liquid flashing system.
   3. Apply masking tape on substrate to create straight-edge terminations of the liquid flashing system.
   4. Embed reinforcing fabric in the liquid flashing system to form monolithic flashing with the finished roofing membrane. Apply finish surfacing on the liquid flashing system to match the color of the finished top ply of the roof membrane or substrate to which the coating is applied as approved by Architect.
   5. Apply reinforced liquid flashing system on top of cap sheet in area 3-feet X 3-feet around each primary roof drain. Embed granules, color to match cap sheet, in surface of liquid flashing.
   6. Apply reinforced liquid flashing/roofing system on top of cap sheet in area 3-feet x 3-feet located around goose-neck exhaust vents and/or pipes that discharge material onto roof surface. Finish surface of liquid flashing/roofing to match color of cap sheet.

J. Daily Seal:
   1. Install temporary seal at completion of each day's work.
   2. Ensure that water does not flow beneath any completed sections of the membrane system. This will include completion of all flashings, terminations, and daily seals. When possible, install starting at the highest point of the project area, working to the lowest point.
   3. Temporarily seal membrane edge with plastic roof cement. Exercise caution to ensure that membrane is not temporarily sealed near drains in such a way to promote water migration below the membrane or impede drainage.
   4. Install primary night seal beneath daily night seal in such a manner to seal both new and existing roof system to roof deck to prevent moisture migration from or into either old roof or new roof.
   5. Install daily night seals by extending the new roof membrane beyond the insulation and sealing to the existing roof surface using plastic roof cement, sealant, self-adhering membrane or other material/method to achieve watertight seal.
   6. When work is resumed, remove and dispose of portion of membrane where materials were applied to achieve night seal.

K. Daily Fire Watch: Contractor personnel to perform daily "Fire Watch" a minimum of two-hours upon completion of heat-fusing installation methods. Contractor to utilize an infrared-sensing thermometer or similar equipment that can provide instant detection of elevated and/or different temperatures of roofing materials. If elevated or suspect temperatures or underlying conditions are detected, contractor to remove

necessary materials and perform necessary actions to alleviate the noted condition. Maintain appropriate number of fire extinguishers on roof during installation of roofing, minimum one per application location.

3.04 PROTECTION PADS:

A. Install layer of heavy-duty protection pad loose laid on top of cut section of modified bitumen protection pad adhered to roof surface for large-sized (greater than 4-inch diameter) or heavy roof-top piping. . Install and adhere a layer of modified bitumen protection pad under each support for typical roof-top piping including condensate piping, conduit (2-inch dimeter and smaller), coolant, gas, and other similar piping. Size of protection layers shall be minimum 2-inches longer in each direction through base of support with rounded corners

B. Install protection pads, adhered to capsheet, in locations where items are to be installed on roof surface including, but not limited to, lightning protection system components

3.05 WALK PADS:

A. Install walkpads around serviced equipment, at roof access points, in areas where water is discharged onto roof surface from adjacent/higher roof area, highly trafficked areas, and as required by Owner. Install adjacent walkpads with approximate 4-inch space between ends and/or sides. Apply walkpads on top of membrane top ply.

3.06 FIELD QUALITY CONTROL:

A. Inspections:
   1. During installation on individual roof areas, provide for one on-site inspection by a technical representative of roof membrane manufacturer.
   2. Upon completion of installation, provide a final inspection and written report by a technical representative of roof membrane manufacturer to confirm that roofing system has been installed in accordance with manufacturer's requirements.

3.07 CLEANING:

A. Remove debris, adhesives, and sealants from surfaces.
B. Remove debris and material waste from project site.

END OF SECTION 07 52 00

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Shop or field-formed sheet metal work for moisture protection.
B. Types of work specified in this Section include:
   1. Roof penetration sleeves and bonnets.
   2. Receivers.
   3. Counter flashings.
   4. Roof edge flashing.
   5. Roof drains.
   6. Plumbing vent pipes.
   7. Curb cap flashings.
   8. Through-wall overflow scuppers.
   9. Coping.
   10. Heat exhaust vents.
   11. Pipe box.
   12. Miscellaneous sheet metal accessories.

1.02 RELATED SECTIONS:

A. 02 40 00 - Minor Demolition and Renovation Work.
B. 07 52 00 - Modified Bitumen Membrane Roofing.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).
B. Federal Specifications (FS).
C. National Roofing Contractor's Association (NRCA): NRCA Roofing and Waterproofing Manual, latest edition.
D. Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA): Architectural Sheet Metal Manual, latest edition.
E. ANSI/SPRI ES-1: "Wind Design Standard for Edge Systems Used With Low Slope Roofing Systems."

1.04 WARRANTY:

A. Contractor's Warranty: Provide Owner a written warranty which shall warrant sheet metal work to be free of leaks and defects in materials and workmanship for two years after date of final acceptance by Owner.
B. For pre-finished metal, provide manufacturer's twenty-year guarantee covering deterioration or failure of the fluoropolymer finish.

1.05 PERFORMANCE REQUIREMENTS:

A. Roof edge sheet metal flashing/coping shall be certified by the manufacturer or shop-fabricator to comply with ANSI/SPRI Standard ES-1 for 150 mph wind speed and horizontal design pressure and vertical design pressure applicable for the eave height of the subject building. ANSI/SPRI ES-1 Test Method RE-3 Test for Copings: The coping shall be tested for 150 mph wind speed and horizontal design pressure and vertical design pressure applicable for the eave height of the subject building

B. The sheet metal coping product shall be UL Classified by Underwriters Laboratories, Inc. or other third-party verification of compliance with the ANSI/SPRI ES-1 Wind Design Standard.

C. Provide base sheet metal that is manufactured in the United States and incorporates some percentage of recycled content. Provide documentation from manufacturer/supplier supporting this information.

1.06 MOCK-UPS:

A. Contractor to prepare mock-ups utilizing materials proposed for the finished product and to simulate the desired appearance of the finished product. Mock-ups shall be of appropriate size to depict finishes and connections

B. Schedule of mock-ups shall include the following: Typical wall counter flashing condition(s); Typical metal edge/fascia condition(s); size of mock-ups shall be 3 feet minimum.

PART TWO - PRODUCTS

2.01 MANUFACTURERS:

A. Acceptable Pre-finished Sheet Metal Manufacturers:
   1. Berridge Manufacturing Company.
   2. Peterson Aluminum Corporation (PAC CLAD).
   3. McElroy Metals, Inc.
   4. Metal Building Components, Inc. (MBCI).
   5. Firestone Metal Co (Una-Clad).
   6. Or approved equal.

2.02 SHEET METAL MATERIAL:

A. Pre-finished Metal: "Kynar 500" or "Hylar 5000" fluoropolymer pre-finished G90 galvanized/galvalume sheet metal, minimum 24 gauge. "Kynar 500" or "Hylar 5000" finish shall consist of a two coat Polyvinyladine flouride, minimum 70 percent by weight in coatings, dry film thickness 1 mil, factory applied by metal manufacturer or supplier. Color selected by Owner from manufacturer's standard color chart.

B. Zinc-coated (Galvanized) Sheet Metal: Commercial quality with 0.20 percent copper, in accordance with ASTM A 526 except ASTM A 527 for lock forming; coating designation G90 hot-dip galvanized, 24 gauge minimum.

C. Sheet Lead: FS QQ-L-201, Grade B; 4 pounds per square foot (140n/m^2) 0.0625-inches (1.6mm) thick minimum as used for roof drains.
D. Stainless Steel Sheet Metal: ASTM A240, Type 304, ASTM A480, No. 2B/2D Mill Finish, gauge as scheduled.

2.03 FASTENERS:

A. Fasteners shall be same metal as flashing and sheet metal being joined.
B. Exposed fasteners shall be self-sealing or gasketed for watertight installation.
C. Heads of fasteners, including but not limited to, rivets, screws, and bolts, that are exposed or visible shall have same manufactured finishes as item being secured; color to match when applicable.
D. Mechanical Fasteners:
   1. Refer to Section 02 40 00 – Minor Demolition and Renovation Work.
   2. Washers: Steel washers with bonded rubber sealing gasket.
   3. Screws: Self-tapping sheet metal type compatible with material fastened.
   4. Rivets: Stainless steel material for the head and stem, closed end, color to match sheet metal items being adjoined.

2.04 RELATED MATERIALS:

A. Solder:
   1. ASTM B 32, alloy grade 58, 50 percent tin, 50 percent lead.
   2. For Use with Stainless Steel: 60-40 tin/lead solder, ASTM B 32.
B. Flux:
   1. Phosphoric acid type, manufacturer's standard.
   2. For Use with Steel or Copper: Rosin flux.
   3. For Use with Stainless Steel: Acid-chloride type flux, except use rosin flux over tinned surfaces.
C. Underlayment: Self-adhering rubberized asphalt sheet membrane, 40-mil thick, suitable for high-temperature applications up to 250 degrees Fahrenheit such as "Blueskin PR 200HT" by Henry, “WIP 300 HT” by Carlisle, or approved equal.
D. Adhesives: Type recommended by flashing sheet manufacturer for waterproof and weather resistant seaming and adhesive application of flashing sheet.
E. Metal Accessories: Sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.
F. Sealant:
   1. Type A: One component polyurethane sealant such as "Sikaflex 1a" by Sika Corp. or “Sonolastic NP1” by BASF, color to match finish of metal.
   2. Type B: Low modulus silicone sealant for sealing metal-to-metal surface (i.e. metal edge, cover plates) such as “Sikasil WS-290” or “Sikasil WS-295” by Sika Corp., “795 Silicone Building Sealant” or “790 Silicone Building Sealant” by Dow Corning, or “GE Silpruf 2000” by Momentive Performance Technologies; color to match finish of metal.

3. Type C: Self-adhering elastomeric butyl tape, 1/8-inch (3mm) by 3/8-inch (9mm), such as "Extru-Seal" by Pecora Corp.
4. Type D: Type A: One component moisture cure polyether polymer sealant available in over 175 standard colors such as "Tite Bond Weather Master Sealant" by Franklin International, color to match finish/color of adjacent sheet metal.

G. Base Material for Flashing Pans:
1. Flashing Pans 12-inch by 12-inch and Smaller: Quick-setting grout formula meeting Corps of Engineers specification CRD-C-621, Type D and ASTM C-1107, Grade C, such as “Five Star Instant Grout” by Five Star Products, Inc., “Sika Grout 212” by Sika Corp., or approved equal.
2. Flashing Pans Larger than 12-inch by 12-inch: Spray-foam such as “FrothPak” by InstaFoam.

H. Pourable Sealer: Single-component pourable polyurethane sealer such as "Pourable Sealer" by JM, "1-Part Pourable Sealer" by Chem-Link, or approved equal.

I. Termination Bar: 1/8-inch (3mm) thick, 1-inch (25mm) wide extruded aluminum bar with flat profile, factory punched oval holes (1/4-inch by 3/8-inch [6mm by 9mm]) spaced 6-inches (150mm) on-center, such as "TB 125" by The TruFast Corp. or “Heavy Flat Bar” by OMG.

J. Stainless Steel Clamp: Stainless steel banding with worm-drive tightening, sized for application such as "Make-A-Clamp Kit" by Dynamic Fastener, 800/821-5448.

2.05 FABRICATION - GENERAL:

A. Fabricate work in accordance with SMACNA Architectural Sheet Metal Manual and other recognized industry practices and approved shop drawings.

B. Comply with material manufacturer's instructions and recommendations for forming material.

C. Shop fabricate work to greatest extent possible. Fabricate inside and outside corners for metal edge flashings and copings from single piece with equal length legs, minimum 3 feet. Notch, lap, and seam inside and outside corners of counter flashings.

D. Fabricate for waterproof and weather resistant performance with expansion provisions for running work sufficient to permanently prevent leakage, damage, or deterioration of work. Form work to fit substrates.

E. Make angle bends and folds for interlocking metal with full regard for expansion and contraction to avoid buckling.

F. Form materials with straight lines, sharp angles, smooth curves, and true levels. Avoid tool marks, buckling, and oil canning.

G. Fold back edges of exposed ends of sheet metal edge to form hem, 1/2-inch minimum.

H. Lap joints 1-inch (25mm) minimum. Rivet and solder joints on parts that are to be permanently and rigidly assembled for copper, stainless, aluminum, and galvanized sheet metal. Install rivets, spaced 1-inch (25mm) on-center and apply solder to secure and seal exposed edge of sheet metal in a uniform continuous bead with smooth top finish. Clean residue upon completion of soldering process. Fabricate sheet metal assemblies so that adjoining sections are nested to achieve continuous metal-to-metal contact.

I. Seams:
   1. Fabricate non-moving seams in sheet metal with flat-lock seams.
   2. Pre-finished Galvanized Sheet Metal: Seal pre-finished metal seams with rivets, spaced 1-inch (25mm) on-center, and silicone sealant, color to match metal finish.
   3. Metal Other than Aluminum: Tin edges to be seamed, form seams, and solder.

J. Expansion Provisions: Where lapped type expansion provisions in work cannot be used or would not be sufficiently waterproof or weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with sealant concealed within joints.

K. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant in compliance with SMACNA standards.

2.06 FABRICATED ITEMS:

A. Receivers and Counter Flashings: Minimum 24-gauge pre-finished sheet metal formed in maximum 10 foot (3m) lengths; fabricate “S”-shaped receiver to engage counter flashing a minimum of 1-inch; fabricate counter flashing with broken fascia of length to extend over top edge of base flashing a minimum of 4-inches with 1/2-inch hemmed drip edge.

B. Wind Clips: Minimum 24-gauge pre-finished sheet metal, 1-inch (25mm) wide, length to engage counter flashing a minimum of 1/2-inch (13mm).

C. Roof Penetration Flashing Pan and Bonnet: Minimum 24-gauge stainless steel sheet metal. Fabricate pan with 1/4-inch (6mm) hem at top edge, 4-inch (100mm) wide horizontal flanges with rounded corners; to provide installed minimum clear inside perimeter dimension of 2-inches (50mm) on each side of penetrating element and 6-inch height. Fabricate bonnet in two-piece adjustable construction with 1/2-inch caulk trough along top edge and a skirt, with hemmed edge, of length to extend over top edge of pan a minimum of 2-inches (50mm).

D. Angle Termination Bar: 1-inch by 1-inch (25mm by 25mm) 24-gauge galvanized sheet metal.

E. Pipe Box (Base, Hood, and Face Plate): 24-gauge stainless steel sheet metal. Base shall be 8-inches in height, with 4-inch wide flanges with rounded corners and sized to provide minimum 2-inch clearance between pipes and box.

F. Cleats/Clips:
   1. Concealed Cleats/Clips: Continuous strips, 22-gauge sheet metal, same metal type and fascia profile as adjacent metal item, with 3/4-inch drip edge formed at a 30 degree angle with vertical wall.
   2. Exposed Cleats/Clips: 24-gauge pre-finished sheet metal.

G. Roof Drain: 4 pound lead, size 30-inch by 30-inch (750mm by 750mm).

H. Heat Exhaust/Gravity Vent/Turbine Vent: 24-gauge stainless steel sheet metal. Base shall be 8-inches in height with 4-inch wide horizontal flanges with rounded corners and hoods to conceal top of base.

I. Curb Cap Flashing: 24-gauge stainless steel sheet metal with 4-inch vertical fascias.

J. Goose-neck Vent: 24-gauge stainless steel sheet metal. Base shall be 8-inches in height with 4-inch wide horizontal flanges with rounded corners.

K. Through-wall overflow scupper: 24-gauge stainless steel sheet metal with 4-inch wide nailing flanges and pre-finished sheet metal face plate.

L. Collector Head: 24-gauge pre-finished sheet metal with tapered discharge and 4-inch x 6-inch downspout.

M. Metal Edge/Fascia:
   1. Shop-Fabricated Option: 24-gauge Pre-finished sheet metal with 4-inch horizontal flange, 1/2-inch high knuckle, and fascia length to extend a minimum of 1-inch below top edge of exterior wall cladding meeting ANSI/SPRI ES-1 for 150 mph wind speed. Form 3/4-inch drip with 5/8-inch return at 30° angle with vertical wall.
   2. Premanufactured Option: Continuous 24-gauge prefinished Kynar 500 coated galvanized sheet metal canted gravel stop with fascia extender meeting ANSI/SPRI ES-1 for 110 mph wind speed such as “MBED Style G” by Hickman, “EdgeSystem One Gravel Stop” by Metal Era or approved equal.

N. Fascia Extender: 24 gauge pre-finished sheet metal with 1/2-inch stiffening rib at mid-span with 3/4-inch drips with 5/8-inch returns at 30-degree angle with vertical wall at bottom end formed in 10-foot lengths.

O. Coping:
   1. Shop-Fabricated Option: 24-gauge pre-finished sheet metal for 8-inch maximum width and 22-gauge for 8-inch to 12-inch width with 6-inch (150mm) wide back-up plates of same profile. Form 3/4-inch drips with 5/8-inch returns at 30-degree angle with vertical wall at bottom end of both interior and exterior fascias. Fabrication to meet specified ANSI/SPRI ES-1 requirements for 110 mph.
   2. Pre-Manufactured Option: Pre-manufactured prefinished sheet metal coping of designated dimensions and meeting ANSI/SPRI ES-1 requirements for 110 mph with continuous cleat installed over sloped substrate such as “Sloped Formed Coping” by Hickman Engineered Systems, “One Coping” by Metal Era, or approved equal.

PART THREE - EXECUTION

3.01 EXAMINATION:

A. Verify that substrates are smooth and clean to extent needed for sheet metal work.
B. Verify that reglets, nails, cants, and blocking to receive sheet metal are installed and free of concrete and soil.
C. Do not start sheet metal work until conditions are satisfactory.

3.02 INSTALLATION:

A. Install sheet metal with lines, arises, and angles sharp and true, and plane surfaces free from objectionable wave, warp, or buckle. Exposed edges of sheet metal shall be folded back to form 1/4-inch (6mm) hem on concealed side from view. Finished work shall be free from water retention and leakage under all weather conditions. Install prefabricated corners or transitions at changes in direction, elevation or plane, and at intersections. Locate field joints not less than 12-inches (300mm), nor more than 3 feet (1m) from actual corner. Laps for all metals, except for prefinished metal, shall be 1-inch (25mm) wide, fastened with rivets spaced 1-inch (25mm) on-center and soldered.
B. Anchor units of work securely in place to prevent damage or distortion from wind or buckling. Provide for thermal expansion of metal units; conceal fasteners where possible; and set units true to line and level as indicated. Install work with laps, joints, and seams permanently watertight and weatherproof.
C. Install fabricated sheet metal items in accordance with manufacturer's installation instructions and recommendations and with SMACNA Architectural Sheet Metal Manual.
D. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating affected surfaces with zinc chromate or other permanent liquid-applied or sheet product separation at locations of contact.
E. Continuous Cleat: At exposed edges of metal edge flashings, fascias, copings, and where required, attach continuous cleat at 6-inches (150mm) on-center with appropriate fasteners positioned on the vertical face and fastened into 2X blocking, concrete/masonry substrate, metal wall panels, or steel substrate. At a distance of 10 feet (3m) from each direction of corner, install fasteners 3-inches (75mm) on-center. Install cleat so fascia extends a minimum of 1-inch (25mm) below top of exterior wall finish.
F. Counter Flashings:
    1. Install new counter flashings under equipment housing flanges and existing or new receivers along rise or parapet walls to extend a minimum of 4-inches below top edge of base flashing.
    2. Secure counter flashing at 6-inches (150mm) on-center with self-tapping screws.
    3. Saw-cut Reglet Mounted Assemblies: Saw cut new joint, 1/2-inch by 1-inch deep, in existing masonry/concrete where required and to install new receiver. Clean and prepare joint surfaces to receive sealant and insert receiver into joint. Secure new receiver in place with lead wedges spaced 12-inches (300mm) on-center wedged into joint. Install backer rod into saw-cut reglet and apply a

continuous bead of sealant, Type B, along reglet and top edge of receiver and tool sealant to provide outward sloping finished surface. Secure counter flashing to receiver utilizing self-tapping grommetted screws spaced 6-inches (150mm) on-center.

4. Surface-mounted Assemblies: Secure two-piece surface-mounted receiver and counter flashing assemblies along concrete substrates. Install sealant tape, Type C, between receiver and substrate. Secure receiver to substrate with termination bar and appropriate fasteners spaced 12-inches on-center. Install a continuous bead of sealant, Type B, along caulk trough/top edge of receiver and tool sealant to provide outward sloping finished surface. Secure counter flashing to receiver utilizing grommetted self-tapping screws spaced 6-inches (150mm) on-center.
5. Install new receivers extending behind wall finish and secure vertical flange of receiver 6-inches on-center to back-up wall or metal wall panels. Extend underlayment and/or dampproofing material over vertical flange of receiver, where applicable.
6. Lap adjacent sections of receivers and counter flashings a minimum of 4-inches (100mm). Apply a continuous bead of sealant, Type B in lap.
7. Trim existing counter flashings at curbs and walls that are to remain to receive new flashings. Secure new counter flashing to trimmed existing flashing utilizing self-tapping screws spaced 6-inches (150mm) on-center.
8. Install wind clips to termination bar spaced 24-inches (600mm) on-center and engage drip edge of counter flashing a minimum of 1/2-inch (13mm).
9. Fabricate the counter flashing to form an integral closure at terminations.

G. Penetration Pans:
1. Install compressible fill insulation between penetrating element and deck.
2. Prime tops and bottoms of flanges of penetration pans.
3. Pop rivet and fully solder joints in pan and flanges.
4. Install penetration pan with flanges set in a uniform troweling of plastic roof cement on membrane base ply, secure flange with appropriate fasteners spaced 6-inches on-center, staggered, and strip-in flanges.
5. Fill penetration pan to within 1-inch (25mm) of top of pan with non-shrink grout. Clean surfaces of pan and penetrating element and fill remainder of pan with pourable sealer.
6. Install sheet metal bonnet or hood to conceal the top of the penetration pan.

H. Roof Penetration Hoods and Bonnet:
1. Install sheet metal hood or bonnet on penetrating element to cover the top of the penetration pans.
2. Round or Pipe Penetrations:
   a. Set bonnet in sealant, Type C; utilize Type B sealant at heat sensitive areas.
   b. Install stainless steel draw band and tighten to secure to penetration.
   c. Seal top of bonnet with sealant, Type B.

3. Square Penetration:
    a. Secure bonnet to penetration with termination bar and self-drilling screws.
    b. Set bonnet in sealant, Type C.
    c. Seal top of bonnet with sealant, Type B.
4. Angle or Structural Steel Penetration:
    a. Attach bonnet to structural steel member by welding.
    b. Paint assembly after installation.

I. Roof Drains:
1. After membrane installation, prime bottom of lead flashing sheet and set in uniform bed of plastic roof cement on membrane base ply at roof drain locations.
2. Extend lead flashing into drain bowl or pipe a minimum of 2-inches (50mm) and over top of piping/ bowl connection, if possible. Apply a continuous bead of sealant, Type A, at intersection of pipe and drain bowl.
3. Mold lead flashing to conform to drain bowl assembly utilizing appropriate hand-held mallet/ hammer.
4. Prime top surface of lead flashing sleeve to receive strip-in membrane.

J. Pipe Box:
1. Pop rivet and fully solder joints and seams in sheet metal base and hood.
2. Prime top and bottom of flanges of base.
3. Install with flanges or embed in plastic roof cement on base ply, secure flanges with appropriate fasteners spaced 6-inches on-center, staggered, and strip-in.
4. Fill base with grout or spray foam to a height of 3/4 of the total pan height.
5. Fill remaining height of base with pourable sealer.
6. Install hood over base, securing to each side with self-tapping screws, and sloping down toward front of box.
7. Install face plate to cover box opening around pipe penetrations and apply sealant, Type B, around pipe configuration at face plate.

K. Plumbing Vent Pipe:
1. Apply liquid flashing around plumbing vent pipe penetrations as noted in Section 075200, as depicted in detail drawings, and in general accordance with manufacturer's installation guidelines. Match color of liquid flashing to color of surfacing of cap sheet.

L. Heat Exhaust/Gravity Vent/Turbine Vent/Goose-neck Vent:
1. Prime top and bottom of flanges of base.
2. Install with flanges set in heat-softened APP base ply or embed in plastic roof cement on SBS base ply, secure flanges with appropriate fasteners spaced 6-inches on-center, staggered, and strip-in.
3. At heat exhaust vents, install sheet metal bonnet secured to vent pipe with stainless steel draw band and apply sealant, Type B, along top edge of bonnet and tool sealant to provide outward sloping finished surface.

M. Curb Cap Flashing:
   1. Install new wood nailers on top of curb to provide substrate to receive cap flashing.
   2. Install and adhere underlayment/modified bitumen flashing over top of curb extending a minimum 4-inches below top of curb and overlapping top edge of base flashing.
   3. Install metal cap flashing over curb. Install appropriate fasteners through the fascia spaced 12-inches on-center.
   4. Reinstall equipment on top of cap flashing on top of vibration isolator pads.

N. Pre-fabricated Metal Edge/Fascia:
   1. After membrane installation, nail the continuous galvanized spring clip to the vertical face of the wood nailer. Locate the fasteners 3/4-inch below the roof edge (approximately center of nailer) and 12-inches on-center using a minimum 1-1/2-inch galvanized ring shank roofing nail. Allow 1/4-inch gap between sections of clip. Install mitered corners first then field sections. Insert one splice plate under each end of miter cover. Install miter covers by engaging miter cover onto anchor cleat and rotating miter cover up and over anchor bar miter until engaged along entire length of the anchor bar.
   2. Install fascia extender in locations where indicated prior to installation of fascia/edge flashing system. Secure clip and fascia extender to wood nailers with appropriate fasteners at 6-inches on-center.
   3. Install roofing membrane flashing over the spring clip allowing it to extend down the face to the drip edge. Locate and hang joint covers at all joints between corners and straight sections.
   4. Install preformed curved sections to match radius of existing construction.
   5. Install prefabricated inside and outside corners fabricated from one piece of sheet metal.
   6. Hook each section of fascia cover over the top of the spring clip and membrane. Press down on the fascia until the drip edge is engaged. Allow 1/8-inch gap for expansion.

O. Low-profile Metal Edge:
   1. Install metal edge flashing/cleat on top of single ply membrane along eaves.
   2. Secure horizontal flange of metal flashing to substrate with appropriate fasteners spaced 3-inches on-center, staggered.
   3. Butt adjacent sections of metal flashing and install back-up plate under butt joint with beads of sealant, Type B, in laps.
   4. Strip-in flange of metal flashing with single ply membrane concealing flange and extending beyond edge of flange to achieve proper welded lap seam.

P. Scupper:
   1. After field membrane is installed, install sheet metal scupper at designated locations. Set scupper in bed of plastic roof cement or heat-softened membrane and secure flanges of scupper to wall and deck with appropriate fasteners.
   2. Strip-in flanges of scupper with appropriate flashing plies.
   3. Install sealant, Type A, around exterior of scupper between metal insert and wall.
   4. Attach face plate to scupper and wall and apply sealant around perimeter.

5. Attach collector head to scupper insert and apply sealant around connection. Attach downspout to collector head to collector head with pop rivets.
6. Install new downspouts plumb and level and secure to wall with straps located at bottom of downspout and located at joints in downspouts. Install downspouts to conform to wall or substrate configuration.
7. Install splash blocks under downspouts that discharge onto roof surface. Install splash block over a protection pad for downspouts located at roof level.

Q. Coping:
1. Install new 2X wood nailers and/or 2X wood nailers and plywood to provide substrate on top of wall to have a resulting positive slope (minimum 1-inch per foot) toward roof.
2. Install and adhere underlayment or flashing membrane over the wood substrate extending a minimum of 1-inch below top of wall system. Lap ends minimum of 3-inches (75mm) and secure membrane in place on exterior vertical face.
3. Install metal coping segments allowing 1/2-inch (13mm) spaces between segments. Lock coping onto cleat and install appropriate fasteners through the interior fascia spaced 24-inches (600mm) on-center in enlarged holes.
4. Install back-up plates centered under butt joints at adjoining sections of coping and set in continuous beads of sealant, Type B, placed approximately 1-inch (25mm) from cover edges.
5. Install appropriate fastener through neoprene washer and back-up plate between coping segments. Apply bead of sealant, color to match sheet metal, in butt joint tooled to match surface of adjacent coping sections.
6. Install cap bead of sealant, Type B, over sealed/riveted lap seam in coping at corners. Apply tape on coping to provide straight edges of tooled cap bead. Remove tape upon completion of tooling.
7. Install pre-manufactured/pre-engineered coping systems in accordance with manufacturer's installation guidelines. Provide and install pre-fabricated corners and end caps/terminations.

3.03 CLEANING:

A. Remove flux and residual acid immediately by neutralizing with baking soda and washing with clean water. Leave work clean and free of stains, scrap, and debris.
B. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration/damage of finishes. Paint (color to match) areas of prefinished metal where finish is damaged. Replace sheet metal items when damaged finish can not be repaired to an acceptable condition.
C. Prime soldered area of phosphatized metal after cleaning to prevent rusting.
D. Paint with elastomeric coating, metal flashings that have been soiled with bitumen. Use medium nap roller to apply paint to surfaces to achieve monolithic finished color.

END OF SECTION 07 62 00

SECTION 07 92 00

JOINT SEALANTS

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Sealant application to counterflashing, reglets, roofing related sheet metal, and additional sealant application as required to provide complete watertight roofing system.

1.02 RELATED SECTIONS:

A. 02 40 00 - Minor Demolition and Renovation Work.
B. 07 62 00 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).
B. Federal Specifications (FS).

1.04 SUBMITTALS:

A. Product Data: Submit manufacturer's product data, joint preparation and installation instructions, and color charts for each product required.
B. Submit manufacturer's certification that products meet specified requirements and are appropriate for project applications.
C. Samples for Initial Selection Purposes: Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available for each product exposed to view.

1.05 QUALITY ASSURANCE:

A. Product Labels: Include manufacturer's name, type of sealant, and color on labels of containers.
B. Single Source Responsibility for Joint Sealer Materials:
   1. Obtain joint sealer materials from single manufacturer for each different product required.
   2. Provide primers, joint sealers, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience as supplied and warranted by one manufacturer.
   3. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.
C. Installer Qualifications: Installer having not less than five years successful experience in comparable projects and employing personnel skilled in operations required for project.

D. Field Sample: Upon directions of Owner, prepare 12-inch (300mm) samples in presence of Owner demonstrating removal and cleaning process and application of sealant.
E. Use test methods standard with manufacturer to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealers to joint substrates under environmental conditions that will exist during actual installation.
F. Installer to perform field adhesion in peel testing using hand pull method. Perform a minimum of one test on every type of substrate and joint condition.
    1. Test Method: Test joint sealers by hand pull method described below:
        a. Install joint sealants in 4 feet joint lengths using same materials and methods for joint preparation and joint sealant installation required for complete work. Allow sealants to cure fully before testing.
        b. Make knife cuts as follows: A horizontal cut from one side of joint to the other followed by two vertical cuts approximately 2-inches (50mm) long at side of joint and meeting horizontal cut at top of 2-inch (50mm) cuts. Place a mark 1-inch (25mm) from top of 2-inch (50mm) piece.
        c. Use fingers to grasp 2-inch (50mm) piece of sealant just above 1-inch (25mm) mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for ten seconds.
    2. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
    3. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of non-compliance with requirements, will be considered satisfactory. Do not use sealants which fail to adhere to joint substrate during testing.
    4. Repair test cut areas immediately after completion of testing work.
    5. Notify in advance and conduct adhesion testing in presence of Consultant.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials in original containers with seals unbroken and labels intact.
B. Store materials in a single lockable area of project site.
C. Protect materials from extreme temperatures and exposure. Store in accordance with manufacturer's recommendations.

1.07 PROJECT CONDITIONS:

A. Environment: Comply with sealant manufacturer's recommended minimum and maximum installation temperatures and other weather protection.

1.08 SEQUENCING AND SCHEDULING:

A. Do not remove more sealant than can be replaced in same day.

1.09 WARRANTY:

A. Manufacturer's Warranty: Provide manufacturer's standard warranty for type of sealant specified.
B. Contractor's Warranty: Provide written warranty against leakage and defects in workmanship for a period of two years from date of final acceptance by Owner.

PART TWO - PRODUCTS

2.01 SEALANT:

A. Sealant:
   1. Type A: One component polyurethane sealant such as "Sikaflex 1a" by Sika Corp. or “Sonolastic NP1” by BASF, color to match finish of metal.
   2. Type B: Low modulus silicone sealant for sealing metal-to-metal surface (i.e. metal edge, cover plates) such as “Sikasil WS-290” or “Sikasil WS-295” by Sika Corp., “795 Silicone Building Sealant” or “790 Silicone Building Sealant” by Dow Corning, or “Silpruf” by General Electric Co.; color to match finish of metal.
   3. Type C: Self-adhering elastomeric butyl tape, 1/8-inch (3mm) by 3/8-inch (9mm), such as "Extru-Seal" by Pecora Corp.
   4. Type D: One-part gun grade butyl rubber sealant such as "BC-158" by Pecora.

2.02 RELATED MATERIALS:

A. Cleaner: Noncorrosive, nonstaining type, compatible with joint forming materials as recommended by sealant manufacturer.
B. Joint Backing:
   1. Closed cell non-gassing polyethylene foam rod, over-sized 30 to 50 percent for joint size, compatible with sealant, sized and shaped to provide proper compression upon insertion in accordance with manufacturer's recommendations.
   2. Acceptable Products:
      a. “Sonolastic Soft Backer-Rod” by Sonneborn.
      b. “SofRod” by Namaco.
      c. Or approved equal products.
C. Bond Preventive Materials: Pressure sensitive adhesive polyethylene strip recommended by sealant manufacturer to suit application.
D. Primer: Nonstaining type as recommended by sealant manufacturer to suit application.
E. Masking Tape: Nonstaining, nonabsorbent type compatible with sealant and surfaces adjacent to joints.

2.03 MIXING:

A. Mix multi-component products as directed by manufacturer.

PART THREE - EXECUTION

3.01 PREPARATION:

A. Removing Existing Sealants and Mortar:
   1. Cut out and remove existing sealants, backer rods, bond breaker tapes, mortar and other loose materials to depth as required by sealant manufacturer or to 1/2-inch (13mm) minimum.
   2. Remove foreign matter from joint substrates which could interfere with adhesion of joint sealant. Remove dust, oil, grease, waterproofing, water repellent, surface dirt, and paints, except for permanent protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
   3. Remove debris from jobsite.

B. Cleaning:
   1. Clean joints receiving sealant and adjacent surfaces in manner not to damage existing materials. Perform cleaning of joints the same day sealant is to be installed in cleaned joint.
   2. Remove dust and debris by blowing clean with high pressure air.
   3. Wipe nonporous surfaces clean with toluene or xylene and clean cloths.

C. Priming:
   1. Prime joint substrates where indicated or where recommended by sealant manufacturer based upon preconstruction sealant substrate tests or prior experience.
   2. Apply primer to comply with joint sealer manufacturer's recommendations. Apply primer to surfaces the same day sealant is to be installed onto primed surfaces.
   3. Confine primers to area of joint sealer bond. Do not allow spillage or migration onto adjoining surfaces.

D. Masking: Mask areas adjacent to joints to prevent sealant contact with surfaces which would be permanently stained or damaged by sealant or by cleaning methods required to remove excess sealant.

3.02 APPLICATION:

A. Joint Backing:
   1. To achieve required joint depths, restrict depth of joints by use of joint backer rod.
   2. Size backer rod to allow for 30 percent minimum compression of the backer rod when installed.
   3. Where joint backing material is not feasible due to insufficient clearance or depth, install bond preventive material in joint.
   4. Three-sided adhesion of sealant is not permitted.

B. Sealant:
   1. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates.
   2. Apply sealant in uniform continuous bead without gaps or air pockets, following manufacturer's instructions for each specific type of sealant.

3. Provide uniform cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

C. Tooling:
   1. Tool joints to required configuration in accordance with manufacturer's recommendations.
   2. Sealant Tape:
      a. Provide continuous uniform bed of sealant tape on horizontal bearing surfaces. Butt adjacent sections end-to-end.
      b. Prior to mating surfaces, remove backing paper from the installed tape.
      c. Firmly press or clamp assembly upon removal of backing paper.
   3. Tooling Non-sag Sealants:
      a. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration required.
      b. Eliminate air pockets and ensure contact and adhesion of sealant with sides of joint.
      c. Remove excess sealant from surfaces adjacent to joint.
      d. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by manufacturer.

D. Remove masking immediately after tooling without disturbing joint sealant.

3.03 ADJUSTING:

A. If damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

3.04 CLEANING:

A. Remove excess sealant from adjacent surfaces immediately after contact with xylene or toluene.

B. Remove debris and containers from jobsite.

3.05 PROTECTION:

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion.

3.06 SCHEDULE:

A. Sealant A:
   1. Sealant work in conjunction with roofing.

B. Sealant B:
   1. Metal-to-metal joints (coping cover plates, counterflashing lap joints, etc.).
   2. Heat sensitive applications.
   3. Counterflashings.
   4. Penetration bonnet caulk troughs.

C. Sealant C:
   1. Between bonnet and penetrating element.
   2. Surface-mounted counterflashings

END OF SECTION 07 92 00

SECTION 08 62 00

UNIT SKYLIGHTS

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Prefabricated fixed unit skylights.

1.02 RELATED SECTIONS:

A. Section 02 41 00 - Rough Carpentry.
B. Section 07 62 00 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. Aluminum Association (AA) - Specifications for Aluminum Structures.
B. American Architectural Manufacturers Association/Window and Door Manufacturers Association/Canadian Standards Association (AAMA/WDMA/CSA) 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
C. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
D. ASTM International (ASTM):
    1. B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
    2. D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
    3. D1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
    4. D2843 - Method for Density of Smoke from the Burning or Decomposition of Plastics.
    5. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
    6. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
    7. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
    8. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes
E. Factory Mutual System (FM Global) 4431 - Approval Standard for Skylights.
F. International Building Code (IBC).

1.04 PERFORMANCE REQUIREMENTS:

A. Skylights:
   1. Conform with Federal, state and local code bodies having jurisdiction.
   2. Windborne-Debris Resistance: Provide unit skylights capable of resisting impact from windborne debris, based on the pass/fail criteria as determined from testing glazed units representative of those specified, according to ASTM E 1886 and ASTM E 1996. Missile Level D, and +65/-65 psf cycle pressure.
   3. Dome Hail Resistance: Exterior dome tested in accordance with Factory Mutual 4430 to meet severe hail with 2.0 inch ice balls.
   4. Solar Heat-Gain Coefficient of 0.46 and Visible Light Transmission of 62%..
   5. Water Penetration under Static Pressure: No evidence of water penetration through unit when tested according to ASTM E 331 at a static-air-pressure differential of 4.6 lbf/sq. ft.
   6. Fall Protection Standard Compliance: 29 CFR 1910.28 and 29 CFR 1910.29: Skylight safety screen tested to support a minimum of 400 pounds over 1 square foot of the surface.
   7. Tested to AAMA/WDMA/CSA 101/I.S.2/A440.
   8. Compliance with OSHA CFRs.
   9. Certified to FM 4431 Approval Standard for Skylight.
   10. Texas Department of Insurance (TDI) Product Evaluation.
   11. FM approved High Velocity Hurricane Zone skylight.

1.05 SUBMITTALS:

A. Submittals for Review:
   1. Shop Drawings: Submit plan, section, elevation, and perspective drawings as necessary to depict each specified skylight. Include flashing, connection, and termination details.
   2. Product Data: Manufacturer's data sheets on each product to be used, including:
      a. Preparation instructions and recommendations.
      b. Storage and handling requirements and recommendations.
      c. Installation methods.

1.06 QUALITY ASSURANCE:

A. Manufacturer Qualifications: Primary products supplied by single manufacturer with minimum of ten years experience.
B. Installer Qualifications: Skylights installed by single installer with minimum of five years demonstrated experience in installing products of same type and scope as specified.

1.07 DELIVERY, STORAGE, AND HANDLING:

A. Store products in manufacturer's unopened packaging until ready for installation.
B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.08 PROJECT CONDITIONS:

A. Do not install skylights unless temperature, humidity, and ventilation are within limits set by manufacturer.

1.09 WARRANTY:

A. Provide manufacturer's standard five year limited warranty against manufacturing defects, outlining terms, conditions, and exclusions from coverage.

PART TWO - PRODUCTS

2.01 SKYLIGHT:

A. Curb mounted fixed skylight utilizing extruded aluminum frame counter-flashing with welded corners, an interior 100% thermally broken gasket for condensation drainage. Double–dome with clear polycarbonate outer glazing and white prismatic polycarbonate interior glazing such as “Dynamic Dome Model CD2” by Velux; “Tufflite Model HVHZ” by Kingspan Light+Air/Bristolite Daylighting Systems, or approved equal.

2.02 MATERIALS:

A. Aluminum Extrusions:
   1. ASTM B221, 6063-T6 alloy and temper.

B. Glazing:
   1. Outer glazing: Clear polycarbonate, 0.118-inches thick.
   2. Inner glazing: White prismatic polycarbonate, 0.118-inches thick.
   3. UBC-26-7 and ASTM D635 achieving minimum CC1 rating.
   4. ASTM D2843.
   5. ASTM D1929.
   6. Dome Shape: Triarch.

B. Frame:
   1. Frame type: Aluminum curb mounted frame with tape.
   2. Frame construction:
      a. Architectural grade extruded aluminum, minimum 0.060-inch (1.5mm) thick,
      b. Squared with 90 degree corners and flat on one plane by insertion of corner stabilizers prior to full heli arc welding.
      c. Full perimeter condensation trough with minimum of six non-clog weep holes routed to outside of frame.
   3. Frame cap:
      a. Architectural grade extruded aluminum, minimum 0.050 inch thick.
      b. Frame cap squared and flat prior to full held-arc welding.
   4. Sealing gasket: Custom formed, UL Listed, 25 year, engineered thermoplastic.
   5. Frame finish: Clear anodized.

C. Fall Protection Screen: Hot-dipped galvanized, 3-inch (75mm) by 4-inch (100mm) welded wire mesh, 0.195 diameter wire with extruded aluminum rails. The aluminum rails shall be secured to the skylight frame with self-tapping screws. The entire assembly shall withstand a minimum of 300 feet per pound

2.03 FABRICATION:

A. Skylights factory assembled and glazed, ready for installation.
B. Fabricate skylights weathertight and free of visual distortions and defects.
C. Protect exterior drip/counterflashing and drainage ports from weather and airborne debris.
D. Miter and full penetration weld corners of curb and retaining frames.
E. Seal retaining frames securing glazing panels along each side under spring tension with silicone sealant along full perimeter of retaining frame.
F. Pre-drill frames for anchorage to roof curbs.
G. Seal glazing panels to base frame with allowance for expansion and contraction.
H. Provide exterior weep hole arrangement.

PART THREE - EXECUTION

3.01 EXAMINATION:

A. Do not begin installation until substrates have been properly prepared.

3.02 PREPARATION:

A. Clean surfaces prior to installation in accordance with manufacturer’s instructions.

3.03 INSTALLATION:

A. Install skylights in accordance with manufacturer's instructions and approved Shop Drawings.
B. Secure skylights to curb with grommetted stainless steel lag screws, spaced 12-inches on-center.
C. Skylight Fall Protection: Clean surfaces of dome retaining frame that are to receive aluminum rails with isopropyl alcohol. Secure rail to skylight frame with self-tapping screws spaced 6-inches on-center.

3.04 PROTECTION:

A. Protect installed products until Final Completion.

3.05 ADJUSTING:

A. Touch-up, repair, or replace damaged products prior to Substantial Completion.

END OF SECTION 08 62 00

SECTION 09 90 00

EXTERIOR PAINTING

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Painting of rooftop equipment hoods, steel equipment supports, steel penetrating elements, boiler flue/heat exhaust stacks, and other miscellaneous roof-top items.

1.02 RELATED SECTIONS:

A. 02 40 00 - Minor Demolition and Renovation Work.
B. 07 92 00 - Joint Sealants.

1.03 DESCRIPTION OF WORK:

A. Painting exterior materials and surfaces as outlined in the Summary of Work.
B. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.
C. Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, copper, and bronze will not require finish painting.

1.04 SUBMITTALS:

A. Color Samples: Prior to beginning work, submit samples for Owner’s review of color, finish, and texture. Provide a listing of material and application for each coat of each finish sample. Sample to match existing paint color and texture.
   1. On 12-inch by 12-inch (300mm by 300mm) hardboard, provide two samples of each color and material with texture to simulate actual conditions. Resubmit samples as requested by Owner until acceptable sheen, color, and texture is achieved.
   2. Final acceptance of colors will be from samples applied on the job.

1.05 QUALITY ASSURANCE:

A. Product Labels: Include manufacturer's name, type of paint, stock number, color, and label analysis on label of containers.
B. Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
C. Match existing color(s) and provide selected color(s) as approved by Owner.
D. Review with Owner, items shop primed by others to determine compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use to ensure compatible prime coats are used.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials in original containers with seals unbroken and labels intact.
B. Store rags, paint, and solvents in closed metal containers located in designated area.
C. Comply with applicable health and fire regulations.

1.07 WARRANTY:

A. Provide Owner a written warranty which shall warrant all paint work to be free of defects in materials and workmanship for two years after Substantial Completion.

PART TWO - PRODUCTS

2.01 MANUFACTURERS:

A. Except as otherwise specified, materials shall be products of the following manufacturers:
   1. Tnemec Co., Inc.
   2. Sherwin-Williams Company.
   3. Or approved equal.
B. Materials selected for coating systems for each type surface shall be product of a single manufacturer unless otherwise specified.

2.02 MATERIALS:

A. Select products from Material List below. Select primary products of a single manufacturer for each coating or paint system, unless otherwise specified.
B. Match existing color(s) and provide selected color(s) as approved by Owner.
C. Paint Material List
   1. Equipment Hoods & Piping:
      a. Lusterless (Flat) Acrylic Finish: Two coats over filler coat or primer coat
         1) Primer: Acrylic Primer - "ProIndustrial Acrylic Primer" by Sherwin Williams.
         2) Finish Coat: "ProIndustrial Acrylic Paint" by Sherwin Williams.
   2. Steel Elements:
      a. Primer: Low VOC Primer - "Series V10" by Tnemec Co., Inc.
      b. Finish Coat: Low VOC Paint - "Series 113" by Tnemec Co., Inc.

PART THREE - EXECUTION

3.01 REPAINTING:

A. Where surfaces are required to be repainted due to patching or alteration work, carry repainting to an internal or external corner using scheduled last coat only over present painted surfaces. Similarly, repaint reused and reinstalled painted metal items with one coat of paint using scheduled last coat for new items. Paint all exposed existing painted surfaces in colors as directed by Owner.

3.02 PREPARATION OF SURFACES:

A. Do not apply finishing materials to surfaces that are not in physically sound, good condition. Remove all foreign matter, corrosion, rough spots, prime coat paint runs, etc., and clean surfaces of dirt, rust, grease, etc. Wire brush miscellaneous steel and iron surfaces and, if necessary, sand smooth metal surfaces to have an enameled finish.

B. If surfaces are not in suitable condition for painting and finishing and cannot be put in such condition by customary preparatory methods, promptly notify Owner or assume responsibility for and rectify any resulting unsatisfactory finish.

C. The proper preparation of surfaces to be finished will be strictly enforced. Remove defects and refinish wherever finished surfaces show defects due to improper preparation, workmanship, etc.

3.03 WORKMANSHIP:

A. Perform work with skilled mechanics. Spread materials evenly, flowing on without runs, lap marks, or other defects. Color undercoats of paint to match final coat closely. Allow each coat to dry thoroughly before applying succeeding coat. Match approved samples of colors and finishes. If specified number of coats do not result in proper hiding and build up, an additional coat or coats will be required at no additional cost to Owner. There shall be no spray painting in the building unless approved in writing by Owner.

B. Provide adequate illumination for painting and finishing. Do not perform painting or finishing in dusty areas or in spaces not heated to 60 degrees Fahrenheit (15.6 degrees Celsius). Perform work only when inclement weather conditions are conducive to product application and cure.

C. Sand enameled and varnished surfaces lightly between coats. Carefully wipe off sanding dust before recoating. Use sandpaper of such fineness as will not leave scratches that succeeding coat of finishing material will not obliterate.

D. Reduce paint and finishing materials, if necessary, for proper application with thinner of type and in quantities not in excess of paint and finishing materials properly stirred during application. If specified number of coats of paint or varnish do not result in proper hiding or build up due to excess thinning or improper application, an additional coat or coats will be required at no cost to Owner.

3.04 PROTECTION AND CLEANING:

A. Protect work of other trades against injury or damage during and because of painting and finishing operations. Replace any material or surfaces damaged, or restore, if such is possible, to original condition.

B. Furnish and lay drop cloths in areas where painting and finishing is being done. Protect floors and other surfaces from dripping materials. Where it becomes necessary to remove temporary coverings protecting material in place in order to proceed with work, replace or provide other satisfactory means of protection.

C. Promptly clean off spots of paint, oil, and stains from walls, bricks, hardware, and other surfaces. Do not allow them to accumulate, dry, or harden. Upon completion of the work, check finished surfaces, clean off previously undetected spots and stains used in painting and finishing from the building, and leave entire building in clean condition insofar as painting and finishing work is concerned.
D. Store paints, varnishes, oils, thinners, and other flammable materials outside building, if possible. When necessary to store inside, only store in covered containers in area designated by owner. Remove oily rags and waste from building at end of each day's work. Keep fire hazard to minimum.

END OF SECTION 09 90 00

SECTION 23 01 25

TEMPORARY MECHANICAL DISCONNECTS

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Pre-testing of mechanical units, temporary raising, disconnects of mechanical units, and reinstallation of units as shown on the drawings, and re-testing and correction of deficiencies caused by the Work.

1.02 QUALITY ASSURANCE:

A. The Contractor shall employ mechanics proficient in the trades involved.
B. The Contractor shall disconnect mechanical equipment only as scheduled in the approved construction schedule and when performing roofing work in the immediate area of the equipment.
C. Each unit shall be fully operational immediately after reinstallation. Shut-down time for each unit shall be limited to a four hour period unless otherwise agreed in writing by Owner's Representative.
D. Prior to commencing any disconnections, the Owner shall be given forty-eight hours notice.

1.03 TESTING:

A. Prior to commencing work, the Contractor shall test mechanical units in the presence of the Owner's Representative.
B. Deficiencies in operation including unusual noises will be noted in writing and shall become a matter of record.
C. Upon completion of the reinstallation of each unit, it shall be retested by the Contractor in the presence of the Owner's Representative.
D. Any deficiencies which were not noted in the initial testing shall be corrected by the Contractor at his expense.

PART TWO - PRODUCTS

2.01 MATERIALS:

A. Any replacement parts or additional materials needed due to changes in curb or pre-manufactured support heights shall be as recommended by the manufacturers of the mechanical unit or as required by governing codes, and shall match the existing materials as to type, size, thickness, and quality.

PART THREE - EXECUTION

3.01 INSTALLATION:

A. After disconnection, move units sufficient distance to permit the installation of the new supports and new ducts and new roofing and flashing materials.
B. Units shall be moved onto existing roofing to the maximum extent possible.
C. Provide plywood traffic ways for moving units, including under equipment used for moving units for its full route of movement.
D. Under no circumstances shall any mechanical units be stored on completed sections of the new roof.
E. After installation of equipment support (if required), the unit shall be reset on the support. Reconnecting of pipe, conduit, wiring, and reactivation of the unit to its original condition shall be provided by Contractor. All conduit modifications, extension of ductwork, etc., shall be provided by Contractor at no additional cost to Owner.
F. Units shall be installed level, plumb, and free of vibration and in accordance with unit manufacturer's original installation practices.

END OF SECTION 23 01 25

SECTION 26 01 25

TEMPORARY ELECTRICAL DISCONNECTS

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Temporarily disconnect rooftop electrical equipment or circuits including fans, conduit, and HVAC units as needed. Contractor shall coordinate work to ensure a minimum disruption to equipment. No piece of equipment shall be moved or disconnected without prior approval from Owner's Representative.
B. Temporarily shut off power to building when working around main power supply conduits on roof.

1.02 QUALITY ASSURANCE:

A. The Contractor shall employ electricians licensed in the electrical trade.
B. The Contractor shall disconnect electrical equipment or feeds only as scheduled in the approved construction schedule and when performing roofing work in the immediate area of the equipment or feed.
C. Each feed or unit shall be fully operational immediately after reinstallation. Shut-down time for each unit shall be limited to a four hour period unless otherwise agreed by Owner's Representative.
D. Prior to commencing any disconnections, the Owner's Representative shall be given forty-eight hours notice.

1.03 TESTING:

A. Prior to commencing roofing work, the Contractor shall test circuits and units in the presence of Owner's Representative. Testing of circuits and units includes the ground system/field.
B. Deficiencies in operation will be noted in writing and shall become a matter of record.
C. Upon completion of the reinstallation of each unit, it shall be retested by the Contractor in the presence of the Owner's Representative.
D. Any deficiencies which were not noted in the initial testing shall be corrected by the Contractor at his expense.

PART TWO - PRODUCTS

2.01 MATERIALS:

A. Any replacement parts or additional materials needed due to changes in curb or pre-manufactured support heights shall be as required by the National Electrical Code (USA).

PART THREE - EXECUTION

3.01 GENERAL:

A. Perform all work to meet the requirements of the National Electrical Code (USA) and local Municipal Electrical Codes.

3.02 DISCONNECTION:

A. Circuits shall be placed under a controlled tagging and log procedure. Prior to disconnection, all sources of power to the panel or equipment shall be verified. De-energized power circuits shall be tagged out.
B. Prior to removing equipment or panels, conductors, cables, conductors and terminals terminating in the equipment shall be uniquely identified. This information shall be recorded on a terminal connection schedule prepared for each piece of equipment. Marking shall consist of industry approved methods such as fiber cable tags and wire and terminal marking materials such as Thomas and Betts or equal. Markings shall be impervious to moisture and chemicals in the working environment.
C. Disconnected cable ends and conductors shall be protected from moisture and rain.
D. After disconnection, move electrical equipment and materials a sufficient distance to permit the installation of roofing and flashing materials.

3.03 RE-INSTALLATION:

A. Resetting: As soon as practicable after the flashing operations on a unit are completed.
B. Install any required duct or electrical connections.
C. Reinstall the units and reconnect for operation.
D. Prior to reconnection, cables and conductors shall be physically inspected to verify they are physically in serviceable condition. Cables and conductors shall be re-terminated in accordance with the termination schedules developed above. Electrical connections shall be properly torqued.
E. Prior to re-energization, electrical units shall be tested to verify continuity and proper connection. Multiphase circuits shall be verified to be connected in the correct phase sequence so that motors turn in the correct direction when energized.
F. Prior to declaring equipment "in service", the equipment and controls shall be checked for proper operation. This shall require the equipment to be exercised through three complete cycles. Any deficiencies occurring during this test shall be corrected and the equipment re-tested until it operates successfully through three complete cycles. Following this test, the equipment shall be declared operational and "in service".

END OF SECTION 26 01 25

SECTION 26 41 00

LIGHTNING PROTECTION SYSTEM

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Remove existing lightning protection system.
B. Install new lightning protection system and related accessories, salvaging existing components where possible.
C. Install lightning protection system as approved by Owner's Representative.

1.02 RELATED SECTIONS:

A. 02 40 00 - Minor Demolition and Renovation Work.
B. 07 52 00 - Modified Bitumen Membrane Roofing.
C. 07 62 00 - Sheet Metal Flashing and Trim.

1.03 STANDARDS:

A. Lightning Protection Institute Installation Standard, LPI 175.
B. Underwriters Laboratories, Inc. Installation Requirement, UL96A.
C. National Fire Protection Association Lightning Protection Code, NFPA78.
D. National Electrical Code (NEC).

1.04 SUBMITTALS:

A. Product Data: Submit manufacturer's data sheets for each product to be used.
B. Shop Drawings:
   1. Submit shop drawings.
   2. Prepare scaled roof plan locating and identifying all required details.
   3. Show type, size, and location of all grounding, down conductors, through roof/through wall assemblies, and roof conductors.
C. Certificates:
   1. Underwriters Laboratories Inc. Master Label.
   2. Lightning Protection Institute Certification.
   3. Field-applied certification plates.

1.05 QUALITY ASSURANCE:

A. Applicator:
   1. Employees Certified Master Installers.
   2. Company is UL listed.
   3. Member of Lightning Protection Institute.
B. Regulatory Requirements: The lightning protection system shall conform to the requirements of the LPI, UL, NFPA, and NEC.
C. Inspection: Contractor shall apply to Underwriters Laboratories Inc. for inspection and certification.

PART TWO - PRODUCTS

2.01 MATERIALS:

A. Copper and bronze and sized, weighted, and constructed to suit pre-application.
B. Bolt type connectors and splicers shall be utilized.
C. All mounting hardware shall be stainless steel.
D. Ground rods shall be stainless steel of appropriate diameter.
E. Air Terminals: Blunt end copper or aluminum units.
F. Braided Cable: Copper or aluminum braided cable.
G. Sealant Adhesive: Non-slump moisture curing structural sealant, gray in color, such as "M-1 Structural Sealant" by ChemLink, Inc.

PART THREE - EXECUTION

3.01 GENERAL INSTALLATION:

A. The installation shall be accomplished by an experienced installation company that is UL listed, a member of the Lightning Protection Institute, United Lightning Protection Association qualified, and an employer of Certified Master Installers of lightning protection systems.
B. A Certified Master Installer shall directly supervise the work.
C. All equipment shall be installed in a neat, workmanlike manner.
D. The system shall consist of a complete conductor network at the roof and include air terminals, connectors, splicers, bonds, copper downleads, and proper ground terminals.
E. Lightning Protection System:
   1. Temporarily disconnect, remove, and salvage the lightning protection system including, but not limited to, cables, holders, clamps, and clips.
   2. Reinstall the lightning protection system so that, upon completion, system can be re-certified by UL.
   3. Install equipment in a neat, workmanlike manner.
   4. System shall consist of a complete conductor network at the roof and include air terminals, connectors, splicers, bonds, and other associated hardware.

5. Secure bases of air terminals and cable holders to inside vertical face of coping or parapet walls with grommetted screws. Install cut section of EPDM rubber or rubber gasket between coping and secured hardware.
6. Set air terminal bases, metal cable holders, and cable connectors in bed of sealant adhesive on top of cut section of modified bitumen protection pad installed on top of membrane.
7. Install aluminum cables where cable is to be in full contact with roof membrane.

3.02 COORDINATION:

A. The lightning protection installer will work with other trades to ensure a correct, neat, and unobtrusive installation.
B. It shall be the responsibility of the lightning protection installer to assure a sound bond to the main water service and to assure interconnection with other ground systems.

3.03 CLEANING:

A. Remove trash, debris, equipment, and parts from the jobsite.
B. Clean exposed metal surfaces, removing substances that might cause corrosion of metal components.

END OF SECTION 26 41 00

ROOF REPLACEMENT PROJECT

for

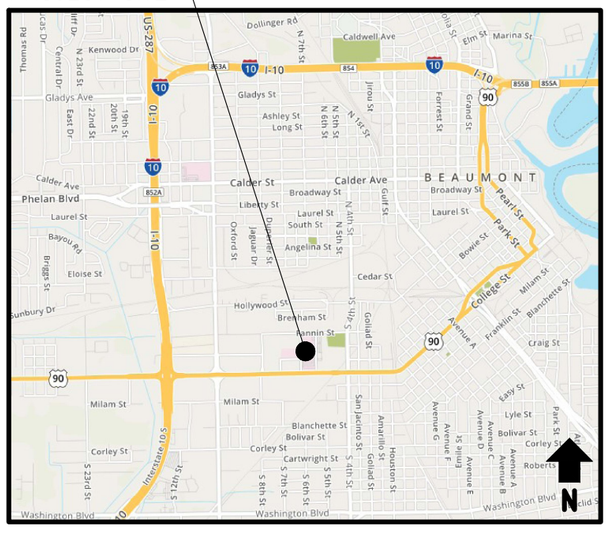
BEAUMONT BAPTIST HOSPITAL – AREAS "ER", "N3", N4", "S3" AND "S4"

3080 COLLEGE ST
BEAUMONT, TEXAS 77701

PREPARED BY
PRICE CONSULTING, INCORPORATED
211 HIGHLAND CROSS, SUITE 220
HOUSTON, TEXAS 77073
(281) 209-1724
TX P.E. FIRM F-3814

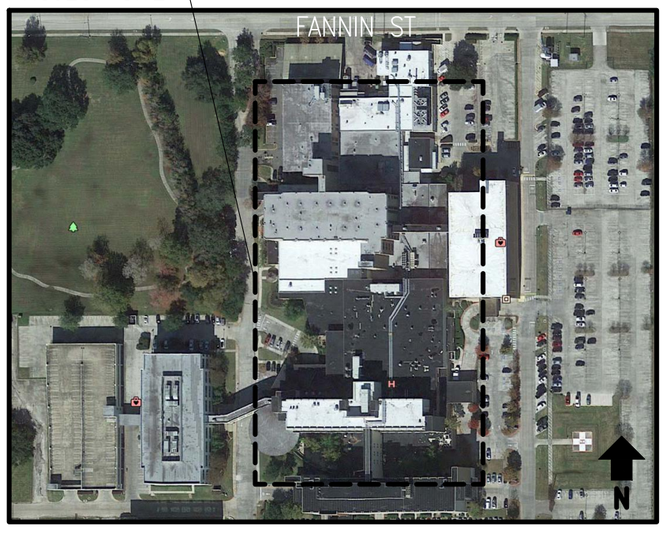
PRICE CONSULTING, INC.

PROJECT SITE



SITE LOCATION

PROJECT SITE



AERIAL SITE PLAN

INDEX TO DRAWINGS

STATE OF TEXAS
KARL A. SCHAACK
70234
REGISTERED PROFESSIONAL ENGINEER
11/7/22
F-3814

PRICE CONSULTING, INC. 211 HIGHLAND CROSS, SUITE 220 HOUSTON, TEXAS 77073 PHONE: (281)209-1724 FAX: (281)209-2724	PROJECT: BEAUMONT BAPTIST HOSPITAL 3080 COLLEGE ST BEAUMONT, TEXAS	OWNER/CLIENT: BAPTIST HOSPITALS OF SOUTHEAST TEXAS 3080 COLLEGE ST BEAUMONT, TEXAS 77702	REVISIONS NO. DATE BY	COVER SHEET PCI PROJECT NO.: 12071.22 PCI FILE NAME: R1.00 SCALE: AS NOTED	DWN.BY: ESG DATE: 11/7/22 SHEET: R1.00

GENERAL NOTES: ROOF REPLACEMENT

1. ALL DIMENSIONS, EQUIPMENT, AND PENETRATION LOCATIONS PRESENTED ON THE DRAWINGS ARE CONSIDERED APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS.

2. THESE DRAWINGS AND DETAILS ACCOMPANY SPECIFICATIONS AND DOCUMENTS THAT COMPRISE A PROJECT MANUAL.

3. DETAILS ARE DESIGNATED AT REPRESENTATIVE LOCATIONS. EACH LOCATION AND SIMILAR CONDITIONS ARE TO BE TREATED ACCORDINGLY.

4. TYPICAL DETAIL DESIGNATION: 1 / RP1 — 1 = DETAIL NUMBER; RP1 = SHEET NUMBER

5. UNLESS INDICATED BY THE TERM "EXISTING", ITEMS PRESENTED ON DETAIL DRAWINGS ARE CONSIDERED TO BE NEW AND FURNISHED BY CONTRACTOR.

6. TYPICAL EXISTING ROOF CONSTRUCTION IS AS FOLLOWS:

   AREAS "ER", "S3", AND "S4":
   EPDM SINGLE-PLY MEMBRANE, ADHERED TO TAPERED LIGHTWEIGHT INSULATING CONCRETE WITH STAIR STEPPED EPS BOARD AND METAL FORM DECK.

   AREAS "N3" AND "N4":
   2-PLY MODIFIED BITUMEN MEMBRANE, BASE SHEET, LIGHTWEIGHT INSULATING CONCRETE DECK WITH EPS BOARD.

7. REMOVE EXISTING ROOFING & FLASHING DOWN TO THE EXISTING DECK.

8. REMOVE DESIGNATED ABANDONED PENETRATIONS/ITEMS AS REQUIRED BY OWNER AND REPAIR OPENINGS IN DECK.

9. NEW ROOF SYSTEM TO BE INSTALLED CONSISTS OF THE FOLLOWING:

   ONE-LAYER OF 2.5-INCH THICK POLYISOCYANURATE INSULATION COMPLYING WITH IBC 2012 SECTION 1508 AND TABLE 1508.2. AND IECC 2009 TO ACHIEVE MINIMUM TOTAL R-VALUE OF R-25 (INCLUDING EXISTING LIGHTWEIGHT INSULATING CONCRETE), WITH ROOF COVER BOARD, AND A TWO-PLY MODIFIED BITUMEN ROOF MEMBRANE CONSISTING OF ONE PLY OF SMOOTH SURFACED BASE PLY & ONE PLY OF GRANULE SURFACED CAP SHEET WITH WHITE REFLECTIVE SURFACING COMPLYING WITH IBC 2018 SECTION 1507.11; SECTION 1505.2: CLASS "A" FIRE CLASSIFICATION AND TO HAVE MINIMUM SOLAR REFLECTANCE OF 0.70 AS TESTED PER ASTM C1549; E903, E1175, OR E1918 AND A MINIMUM THERMAL EMITTANCE OF 0.75 AS TESTED PER ASTM C835, C1371, OR E408.

10. WATER TEST EXISTING ROOF DRAINS; WIRE BRUSH, CLEAN & PAINT C.I. CLAMP RINGS & C.I. STRAINERS TO BE REINSTALLED; SECURE CLAMP RINGS WITH NEW STAINLESS STEEL BOLTS/THREADED RODS, WASHERS & NUTS; REPLACE BROKEN &/OR MISSING COMPONENTS.

11. INSTALL TAPERED INSULATION SUMPS AT DRAINS AND CRICKETS BETWEEN ROOF DRAINS.

12. CLEAN AND PAINT ROOF-TOP STEEL/METAL ELEMENTS INCLUDING LADDERS, EQUIPMENT SUPPORTS, UTILITY PIPING, EQUIPMENT HOODS, ETC.

13. PROVIDE NEW WOOD BLOCKING/NAILERS AS DESIGNATED ON DRAWINGS. BLOCKING/NAILERS AND/OR COMBINATION WITH PLYWOOD SHEATHING TO MATCH THICKNESS OF NEW ROOF SYSTEM AT RESPECTIVE LOCATIONS, AND WIDTH TO EXTEND BEYOND EDGE OF METAL FLANGE WHERE APPLICABLE.

14. RAISE OR LOWER ALL EQUIPMENT, UTILITY LINES, PENETRATIONS, PIPING, ETC. AS REQUIRED FOR INSTALLATION OF THE NEW ROOF SYSTEM. PROVIDE NECESSARY DISCONNECT/RECONNECT, EXTENSIONS AND MISC. COMPONENTS.

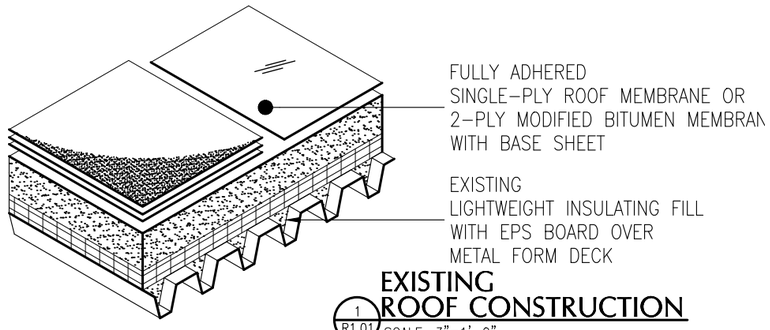
15. PROVIDE LIQUID FLASHING SYSTEM FOR STEEL PIPES, ANGLES, TUBE POSTS, CONDUITS LIGHTS, STAIR/LADDER, HANDRAIL POSTS, SUPPORTS AND OTHER SIMILAR PENETRATIONS THROUGH THE ROOF SYSTEM.

16. PROVIDE ROOF SYSTEM TESTED IN ACCORDANCE WITH FM 4470 AND MEETING MINIMUM WIND UPLIFT PRESSURES AS FOLLOWS:

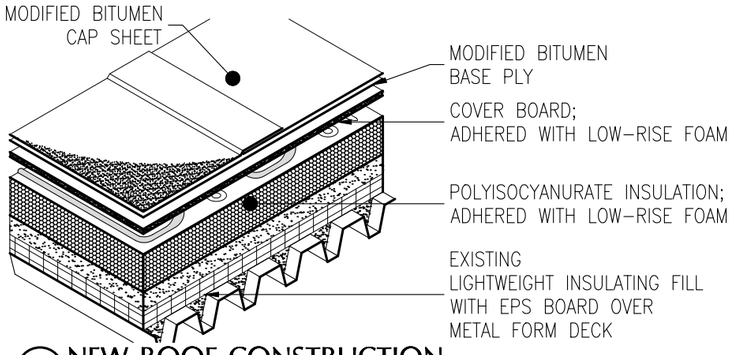
ASCE 7-10 ROOF SYSTEM WIND UPLIFT CRITERIA:	WIND SPEED: 145MPH EXPOSURE: B BUILDING CATEGORY: ENCLOSED SAFETY FACTOR: 2.0 RISK CATEGORY: III-IV
FIELD	**60 PSF**
PERIMETER (8' WIDE)	**90 PSF**
CORNER (8'X8')	**135 PSF**

17. INSTALL WALK PADS AT ROOF ACCESS AND AROUND ROOFTOP EQUIPMENT.

18. DISCONNECT AND RAISE EQUIPMENT SITTING ON ROOF; INSTALL NEW CURBS ATTACHED TO DECK/STRUCTURE, AND RESET EQUIPMENT ON CURBS AND STRAP FOR WIND RESISTANCE.



1 / R1.01 EXISTING ROOF CONSTRUCTION
SCALE: 3"=1'-0"



2 / R1.01 NEW ROOF CONSTRUCTION
SCALE: 3"=1'-0"

19. REMOVE EXISTING LIGHTNING PROTECTION SYSTEM AND REINSTALL AFTER ROOF INSTALLATION. ATTACH LIGHTNING PROTECTION SYSTEM TO VERTICAL FACES OF EQUIPMENT AND PARAPET WALLS. ADHERE CABLE HOLDERS WITH SEALANT/ADHESIVE TO MODIFIED BITUMEN PAD. PROVIDE BLUNT-TIP AIR TERMINALS. SUBMIT LIGHTNING PROTECTION PLAN FOR REVIEW AND APPROVAL. INSTALL LIGHTNING PROTECTION SYSTEM TO MEET APPLICABLE UL CERTIFICATION AND OTHER CODES AND SUBMIT DOCUMENTATION OF SUCH UPON COMPLETION.

20. SITE AND WORK AREAS SHALL BE CLEANED ON A DAILY BASIS AND MATERIALS/EQUIPMENT SECURED AT THE END OF EACH WORK DAY.

21. PROTECT BUILDING EXTERIOR AND GROUNDS INCLUDING SURFACES, GRASS, PLANTS, TREES, SHRUBS, AND OTHER LANDSCAPING, AND RETURN THE SITE AND ANY DAMAGED ITEMS TO ORIGINAL OR BETTER CONDITION. ANY SURFACES STAINED STAINED, MARRED, OR DAMAGED BY THE WORK SHALL BE RETURNED TO ORIGINAL OR BETTER CONDITION AND MATCH ADJACENT SURFACES.

22. AT DESIGNATED RISE WALL LOCATIONS, AND AS REQUIRED TO ACHIEVE PROPER FLASHING HEIGHTS. REMOVE/RETAIN EXISTING MASONRY (REPLACE AND MATCH WHERE NECESSARY); INSTALL NEW STAINLESS STEEL SHEET METAL THROUGH-WALL FLASHING AND FLEXIBLE FLASHING; REINSTALL MASONRY TO ACHIEVE PROPER FLASHING HEIGHTS FOR NEW ROOF.

23. REMOVE ABANDONED EQUIPMENT, CURBS, PENETRATIONS, PADS AND/OR OTHER ITEMS ON ROOF AND REPAIR DECK OR OPENING TO RECEIVE NEW ROOF.

24. REPLACE EXISTING SHEET METAL EDGE FLASHING AND COPING AND INSTALL NEW PRE MANUFACTURED OR SHOP FABRICATED ASSEMBLIES TO COMPLY WITH ANSI/SPRI ES-1; RE-1, RE-2, AND RE-3 TEST STANDARDS TO MEET 145 PSF HORIZONTAL LOAD AND 300 PSF VERTICAL LOAD.

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BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

REVISIONS

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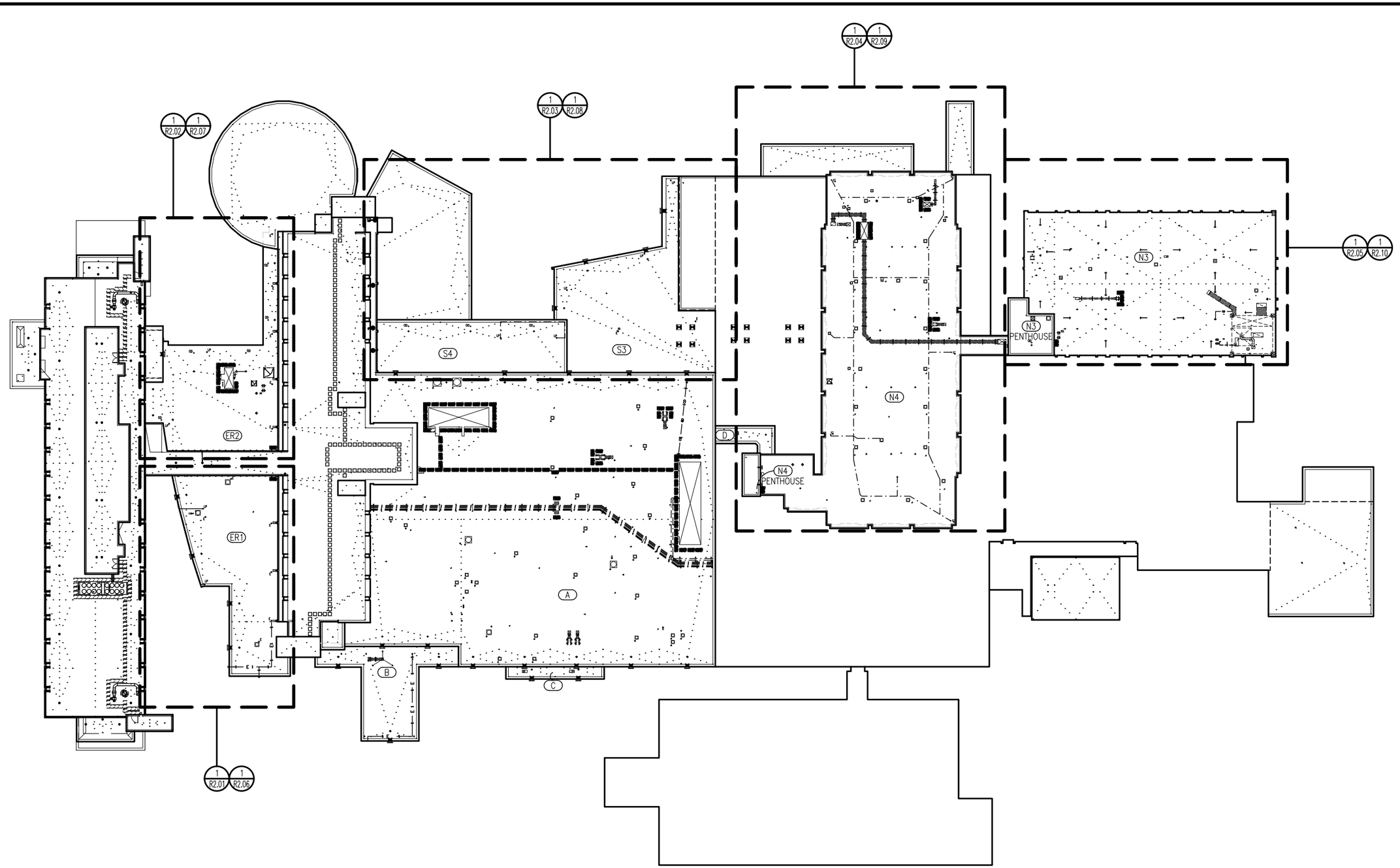
GENERAL NOTES
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R1.01
SCALE: AS NOTED

DWN.BY: ESG
DATE: 11/7/22
SHEET: R1.01



LEGEND

OD OVERFLOW DRAIN	PLUMBING VENT
ROOF DRAIN	HEAT EXHAUST
WALL DRAIN	CURBED HEAT EXHAUST
SUMPED DRAIN	GRAVITY VENT
POWER VENT	GRAVITY VENT
CURBED VENT STACK	TURBINE VENT
CURBED TURBINE VENT	MOISTURE RELIEF VENT
ABANDONED PENETRATION	PITCH PAN
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CD CONDENSATION DRAIN LINE	TB TIE-BACK
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G GAS LINE	EXPANSION JOINT
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W CHILL / HOT WATER	METAL EDGE
AT AIR TERMINAL	DOWNSPOUT AND GUTTER
LP THROUGH-ROOF CONNECTION	PARAPET
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EQUIPMENT CURB	THROUGH-EDGE SCUPPER
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TEST LOCATION	METAL ROOF
XX PHOTO LOCATION	COLUMN
XX PROBE LOCATION	
SUSPECTED WET AREA	

EXISTING OVERALL ROOF PLAN:
BEAUMONT BAPTIST HOSPITAL: AREAS "ER 1", "ER 2", "N3", "N4", "S3" AND "S4"

1 R2.00 SCALE: 1"=60'-0"(11"x17"); 1"=30'-0"(22"X34")

STATE OF TEXAS
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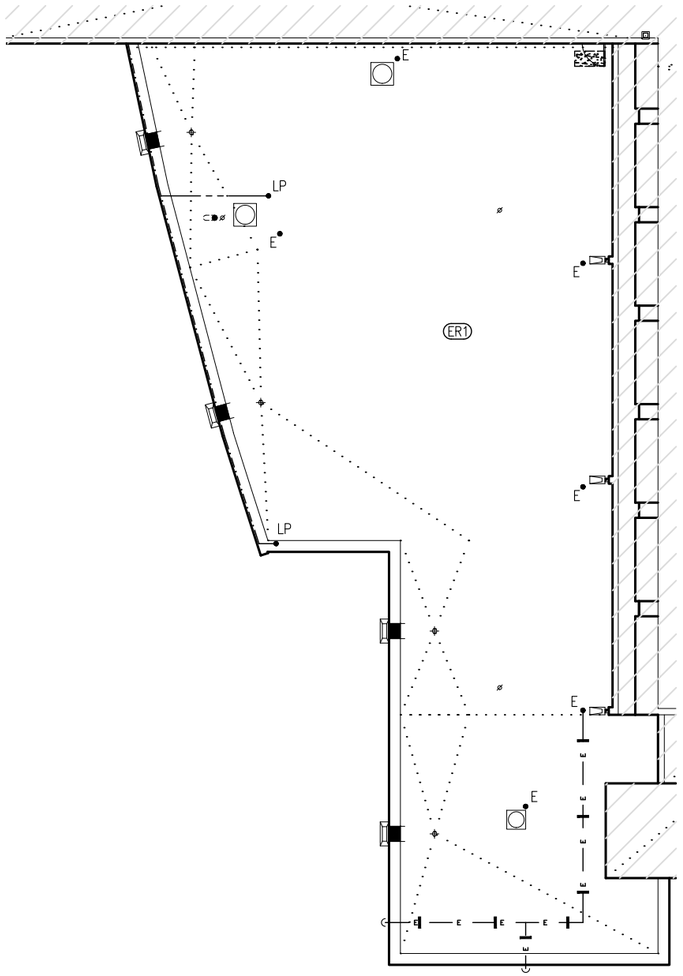
EXISTING OVERALL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22

SHEET: R2.00



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1 R2.01 EXISTING PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "ER1"

SCALE: 1"=20'-0"(11"x17"); 1"=10'-0"(22"X34")

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PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
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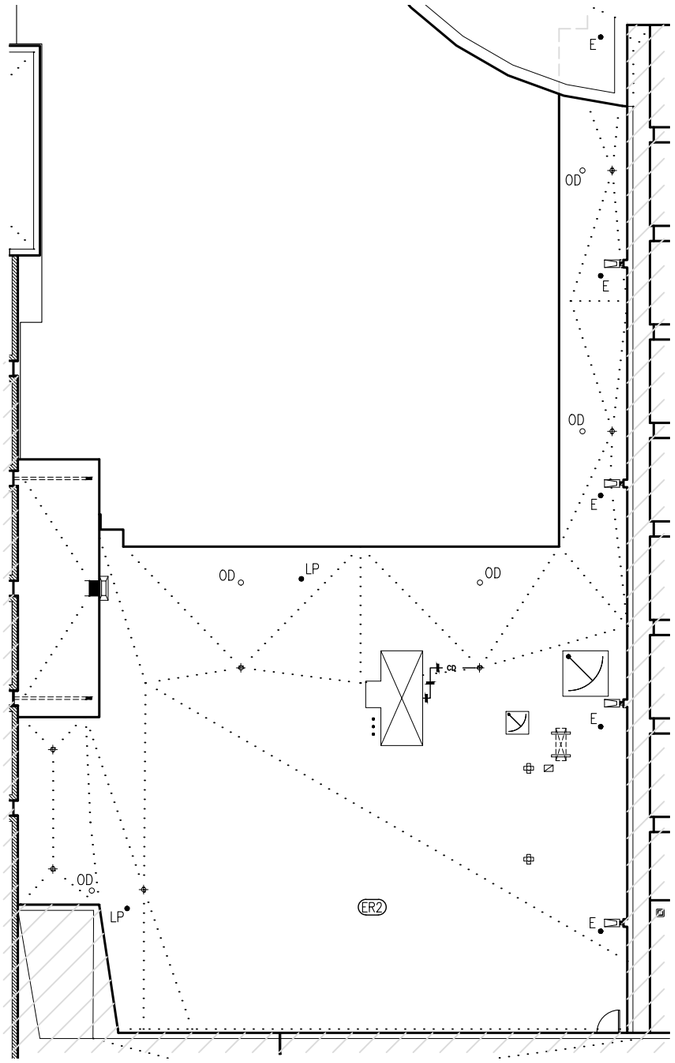

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1 R2.02 EXISTING PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "ER2"

SCALE: 1"=20'-0"(11"x17"); 1"=10'-0"(22"X34")

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BEAUMONT, TEXAS

OWNER/CLIENT:
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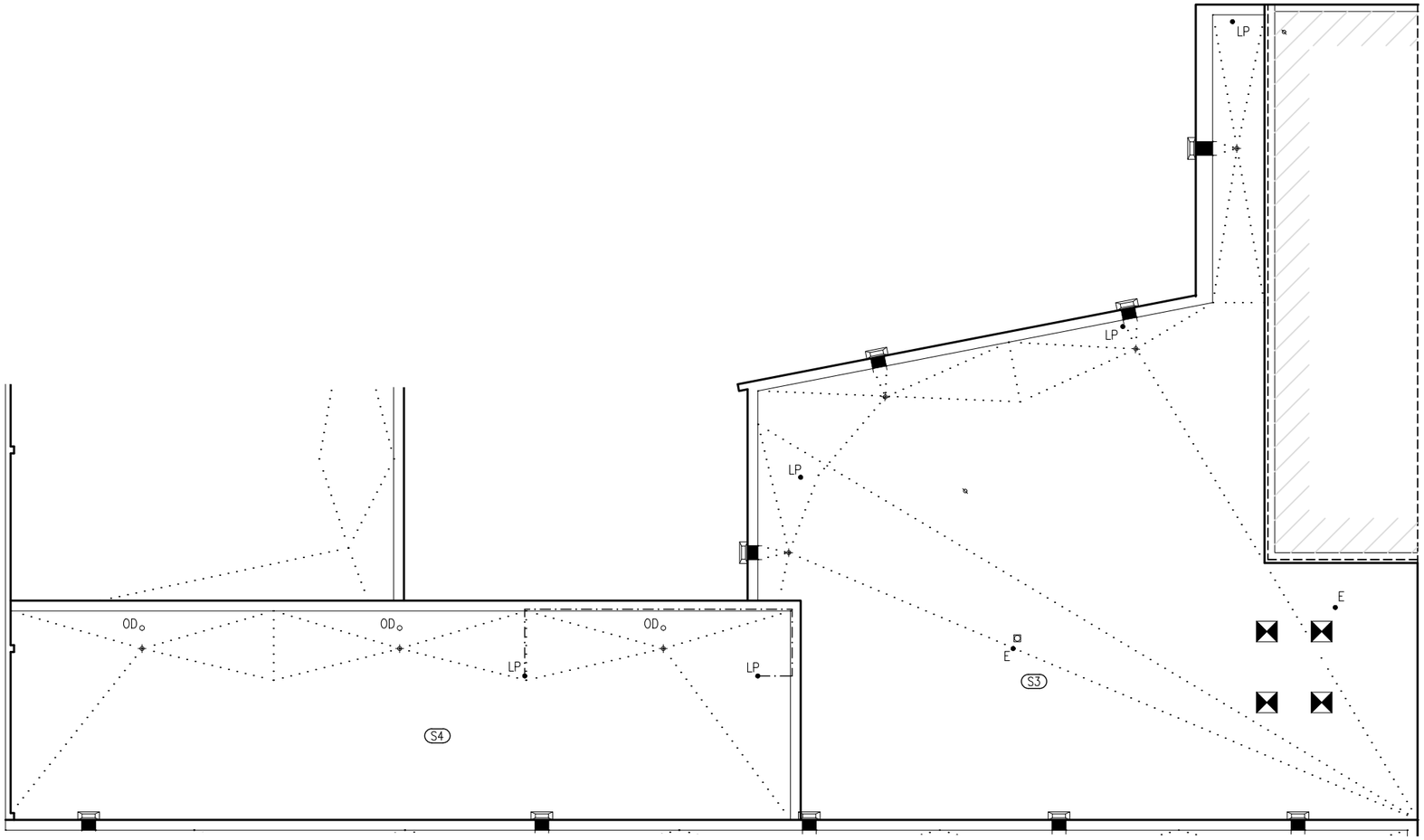
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.02



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1 R2.03 EXISTING PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREAS "S3" AND "S4"

SCALE: 1"=20'-0"(11"x17"); 1"=10'-0"(22"X34")

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BEAUMONT, TEXAS

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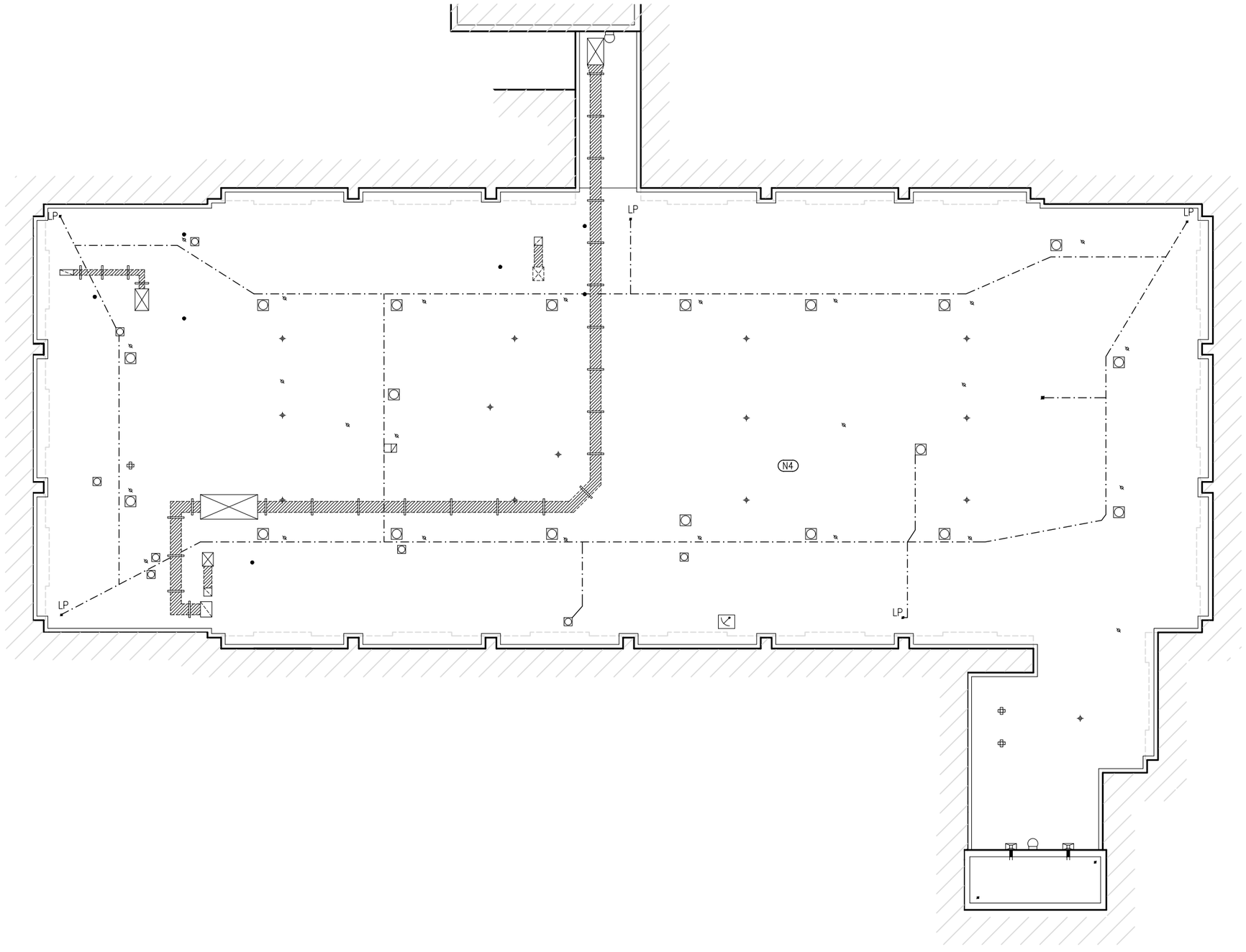

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ABANDONED PENETRATION	PITCH PAN
PIPING ON HANGERS	ROUND PENETRATION
PIPING ON SUPPORTS	GOOSENECK PENETRATION
PIPING ON CURBS	PIPE BOX
CD CONDENSATION DRAIN LINE	TB TIE-BACK
E ELECTRICAL CONDUIT	DV DAVIT
G GAS LINE	EXPANSION JOINT
MS MECHANICAL SCREEN	ROOF-TO-WALL EXPANSION JOINT
W CHILL / HOT WATER	METAL EDGE
AT AIR TERMINAL	DOWNSPOUT AND GUTTER
LP THROUGH-ROOF CONNECTION	PARAPET
DUCT PENETRATION	THROUGH-WALL SCUPPER
EQUIPMENT CURB	THROUGH-EDGE SCUPPER
VENT / INTAKE	SCUPPER WITH COLLECTOR HEAD
GRAVITY VENT	WALL THICKNESS INDICATOR
EQUIPMENT ON SUPPORTS	WALL HEIGHT INDICATOR
EQUIPMENT ON PITCH PANS	SPLASHBLOCK
EQUIPMENT ON SLEEPERS	CURBED DUCT PENETRATION
EQUIPMENT ON CURBS	DUCT ON SUPPORTS
SATELLITE DISH	DUCT ON CURBS
ROOF-MOUNTED LADDER	DUCT ON STEEL
CAGED LADDER	ROOF HATCH
WALL-MOUNTED LADDER	SMOKE HATCH
WALKPAD	SKYLIGHT
DOOR ACCESS	STRUCTURAL SKYLIGHT
LIGHT	STRUCTURAL SKYLIGHT
SHINGLE ROOF	CHIMNEY
ANTENNA	ROUND GOOSENECK
A2 AREA IDENTIFICATION	SQUARE GOOSENECK
CORE LOCATION	RISE-WALL
L LEAK LOCATION	GUY WIRE ANCHOR
XX INFRARED I.D.	TILE ROOF
TEST LOCATION	METAL ROOF
PHOTO LOCATION	COLUMN
PROBE LOCATION	
SUSPECTED WET AREA	

STATE OF TEXAS
KARL A. SCHAACK
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REGISTERED PROFESSIONAL ENGINEER
11/7/22
F-3814

1 R2.04 EXISTING PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "N4"

SCALE: 1"=20'-0"(11"X17"); 1"=10'-0"(22"X34")

PRICE CONSULTING, INC.
PRICE CONSULTING, INC.
211 HIGHLAND CROSS, SUITE 220
HOUSTON, TEXAS 77073
PHONE: (281)209-1724 FAX: (281)209-2724

PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

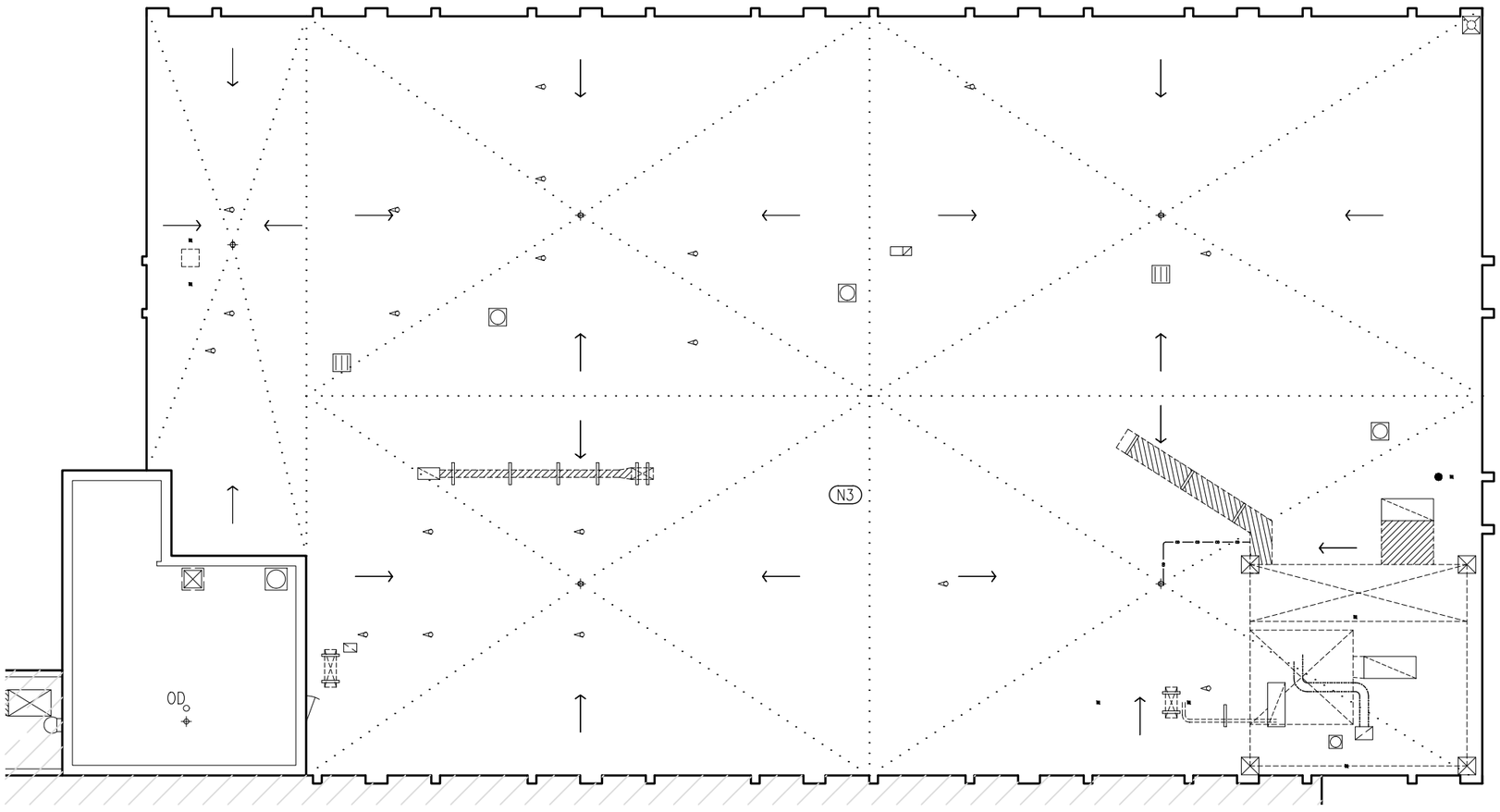
REVISIONS

NO.	DATE	BY

EXISTING PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.04



LEGEND

- OVERFLOW DRAIN
- ROOF DRAIN
- WALL DRAIN
- SUMPED DRAIN
- POWER VENT
- CURBED VENT STACK
- CURBED TURBINE VENT
- ABANDONED PENETRATION
- PIPING ON HANGERS
- PIPING ON SUPPORTS
- PIPING ON CURBS
- CONDENSATION DRAIN LINE
- ELECTRICAL CONDUIT
- GAS LINE
- MECHANICAL SCREEN
- CHILL / HOT WATER
- AIR TERMINAL
- THROUGH-ROOF CONNECTION
- DUCT PENETRATION
- EQUIPMENT CURB
- VENT / INTAKE
- GRAVITY VENT
- EQUIPMENT ON SUPPORTS
- EQUIPMENT ON PITCH PANS
- EQUIPMENT ON SLEEPERS
- EQUIPMENT ON CURBS
- SATELLITE DISH
- ROOF-MOUNTED LADDER
- CAGED LADDER
- WALL-MOUNTED LADDER
- WALKPAD
- DOOR ACCESS
- LIGHT
- SHINGLE ROOF
- ANTENNA
- AREA IDENTIFICATION
- CORE LOCATION
- LEAK LOCATION
- INFRARED I.D.
- TEST LOCATION
- PHOTO LOCATION
- PROBE LOCATION
- SUSPECTED WET AREA
- PLUMBING VENT
- HEAT EXHAUST
- CURBED HEAT EXHAUST
- GRAVITY VENT
- GRAVITY VENT
- TURBINE VENT
- MOISTURE RELIEF VENT
- PITCH PAN
- ROUND PENETRATION
- GOOSENECK PENETRATION
- PIPE BOX
- TIE-BACK
- DAVIT
- EXPANSION JOINT
- ROOF-TO-WALL EXPANSION JOINT
- METAL EDGE
- DOWNSPOUT AND GUTTER
- PARAPET
- THROUGH-WALL SCUPPER
- THROUGH-EDGE SCUPPER
- SCUPPER WITH COLLECTOR HEAD
- WALL THICKNESS INDICATOR
- WALL HEIGHT INDICATOR
- SPLASHBLOCK
- CURBED DUCT PENETRATION
- DUCT ON SUPPORTS
- DUCT ON CURBS
- DUCT ON STEEL
- ROOF HATCH
- SMOKE HATCH
- SKYLIGHT
- STRUCTURAL SKYLIGHT
- STRUCTURAL SKYLIGHT
- CHIMNEY
- ROUND GOOSENECK
- SQUARE GOOSENECK
- RISE-WALL
- GUY WIRE ANCHOR
- TILE ROOF
- METAL ROOF
- COLUMN

STATE OF TEXAS
KARL A. SCHAACK
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REGISTERED PROFESSIONAL ENGINEER
11/7/22
F-3814

1 R2.05 EXISTING PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "N3"

SCALE: 1/16"=1'-0"(11"x17"); 1/8"=1'-0"(22"X34")

PRICE CONSULTING, INC.
PRICE CONSULTING, INC.
211 HIGHLAND CROSS, SUITE 220
HOUSTON, TEXAS 77073
PHONE: (281)209-1724 FAX: (281)209-2724

PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

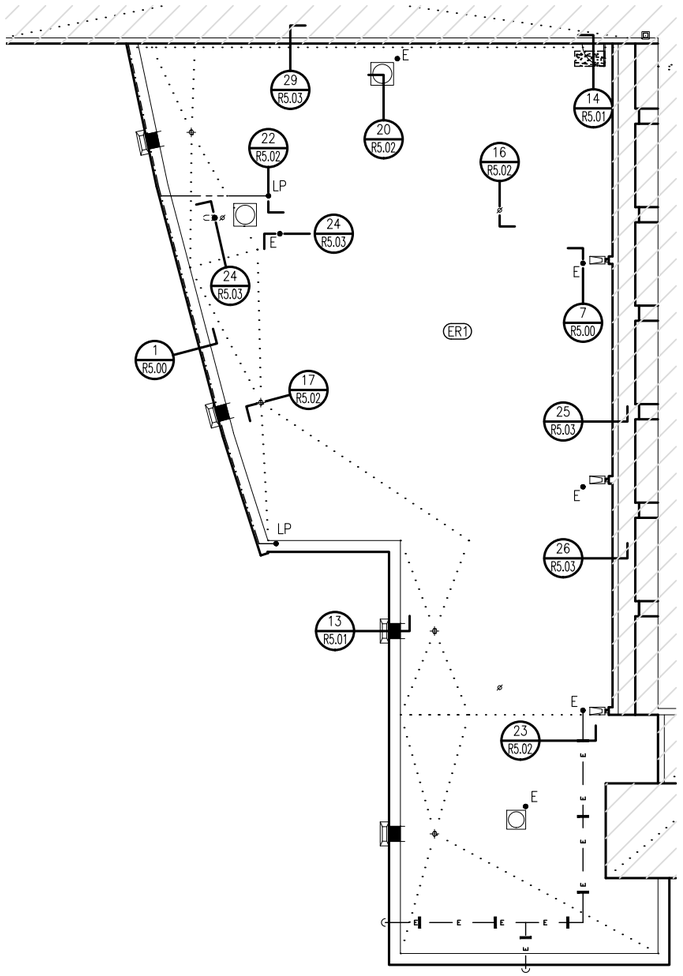
REVISIONS

NO.	DATE	BY

EXISTING PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.05



LEGEND

OVERFLOW DRAIN	PLUMBING VENT
ROOF DRAIN	HEAT EXHAUST
WALL DRAIN	CURBED HEAT EXHAUST
SUMPED DRAIN	GRAVITY VENT
POWER VENT	GRAVITY VENT
CURBED VENT STACK	TURBINE VENT
CURBED TURBINE VENT	MOISTURE RELIEF VENT
ABANDONED PENETRATION	PITCH PAN
PIPING ON HANGERS	ROUND PENETRATION
PIPING ON SUPPORTS	GOOSENECK PENETRATION
PIPING ON CURBS	PIPE BOX
CONDENSATION DRAIN LINE	TIE-BACK
E – ELECTRICAL CONDUIT	DAVIT
G – GAS LINE	EXPANSION JOINT
MS – MECHANICAL SCREEN	ROOF-TO-WALL EXPANSION JOINT
W – CHILL / HOT WATER	METAL EDGE
AIR TERMINAL	DOWNSPOUT AND GUTTER
THROUGH-ROOF CONNECTION	PARAPET
DUCT PENETRATION	THROUGH-WALL SCUPPER
EQUIPMENT CURB	THROUGH-EDGE SCUPPER
VENT / INTAKE	SCUPPER WITH COLLECTOR HEAD
GRAVITY VENT	WALL THICKNESS INDICATOR
EQUIPMENT ON SUPPORTS	WALL HEIGHT INDICATOR
EQUIPMENT ON PITCH PANS	SPLASHBLOCK
EQUIPMENT ON SLEEPERS	CURBED DUCT PENETRATION
EQUIPMENT ON CURBS	DUCT ON SUPPORTS
SATELLITE DISH	DUCT ON CURBS
ROOF-MOUNTED LADDER	DUCT ON STEEL
CAGED LADDER	ROOF HATCH
WALL-MOUNTED LADDER	SMOKE HATCH
WALKPAD	SKYLIGHT
DOOR ACCESS	STRUCTURAL SKYLIGHT
LIGHT	STRUCTURAL SKYLIGHT
SHINGLE ROOF	CHIMNEY
ANTENNA	ROUND GOOSENECK
AREA IDENTIFICATION	SQUARE GOOSENECK
CORE LOCATION	RISE-WALL
LEAK LOCATION	GUY WIRE ANCHOR
INFRARED I.D.	TILE ROOF
TEST LOCATION	METAL ROOF
PHOTO LOCATION	COLUMN
PROBE LOCATION	
SUSPECTED WET AREA	

STATE OF TEXAS
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1 R2.06 NEW PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "ER1"

SCALE: 1"=20'-0"(11"x17"); 1"=10'-0"(22"X34")

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PHONE: (281)209-1724 FAX: (281)209-2724

PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

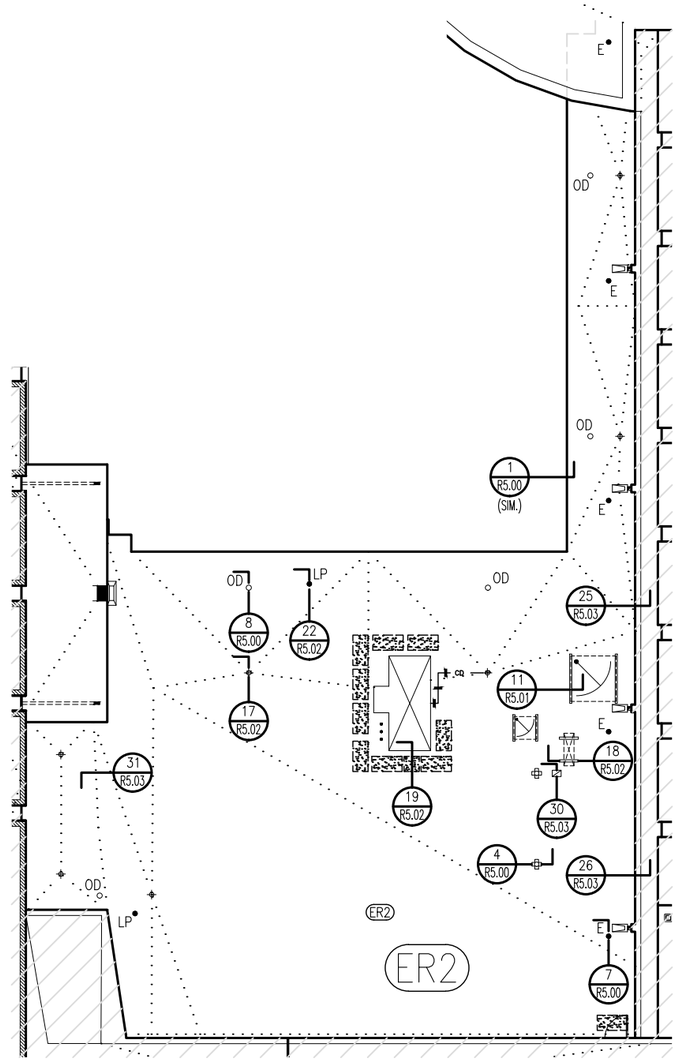
REVISIONS

NO.	DATE	BY

NEW PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.06



1 / R2.07 NEW PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "ER2"

SCALE: 1"=20'-0"(11"x17"); 1"=10'-0"(22"X34")

LEGEND

- OVERFLOW DRAIN
- ROOF DRAIN
- WALL DRAIN
- SUMPED DRAIN
- POWER VENT
- CURBED VENT STACK
- CURBED TURBINE VENT
- ABANDONED PENETRATION
- PIPING ON HANGERS
- PIPING ON SUPPORTS
- PIPING ON CURBS
- CD — CONDENSATION DRAIN LINE
- E — ELECTRICAL CONDUIT
- G — GAS LINE
- MS — MECHANICAL SCREEN
- W — CHILL / HOT WATER
- AT AIR TERMINAL
- LP THROUGH-ROOF CONNECTION
- DUCT PENETRATION
- EQUIPMENT CURB
- VENT / INTAKE
- GRAVITY VENT
- EQUIPMENT ON SUPPORTS
- EQUIPMENT ON PITCH PANS
- EQUIPMENT ON SLEEPERS
- EQUIPMENT ON CURBS
- SATELLITE DISH
- ROOF-MOUNTED LADDER
- CAGED LADDER
- WALL-MOUNTED LADDER
- WALKPAD
- DOOR ACCESS
- LIGHT
- SHINGLE ROOF
- ANTENNA
- A2 AREA IDENTIFICATION
- CORE LOCATION
- L LEAK LOCATION
- XX INFRARED I.D.
- TEST LOCATION
- XX PHOTO LOCATION
- XX PROBE LOCATION
- SUSPECTED WET AREA
- PLUMBING VENT
- HEAT EXHAUST
- CURBED HEAT EXHAUST
- GRAVITY VENT
- GRAVITY VENT
- TURBINE VENT
- MOISTURE RELIEF VENT
- PITCH PAN
- ROUND PENETRATION
- GOOSENECK PENETRATION
- PIPE BOX
- TB TIE-BACK
- DV DAVIT
- EXPANSION JOINT
- ROOF-TO-WALL EXPANSION JOINT
- METAL EDGE
- DOWNSPOUT AND GUTTER
- PARAPET
- THROUGH-WALL SCUPPER
- THROUGH-EDGE SCUPPER
- SCUPPER WITH COLLECTOR HEAD
- WALL THICKNESS INDICATOR
- WALL HEIGHT INDICATOR
- SPLASHBLOCK
- CURBED DUCT PENETRATION
- DUCT ON SUPPORTS
- DUCT ON CURBS
- DUCT ON STEEL
- ROOF HATCH
- SMOKE HATCH
- SKYLIGHT
- STRUCTURAL SKYLIGHT
- STRUCTURAL SKYLIGHT
- CHIMNEY
- ROUND GOOSENECK
- SQUARE GOOSENECK
- RISE-WALL
- GUY WIRE ANCHOR
- TILE ROOF
- METAL ROOF
- COLUMN

STATE OF TEXAS
KARL A. SCHAACK
70234
REGISTERED PROFESSIONAL ENGINEER
11/7/22
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PRICE CONSULTING, INC.
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PHONE: (281)209-1724 FAX: (281)209-2724

PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

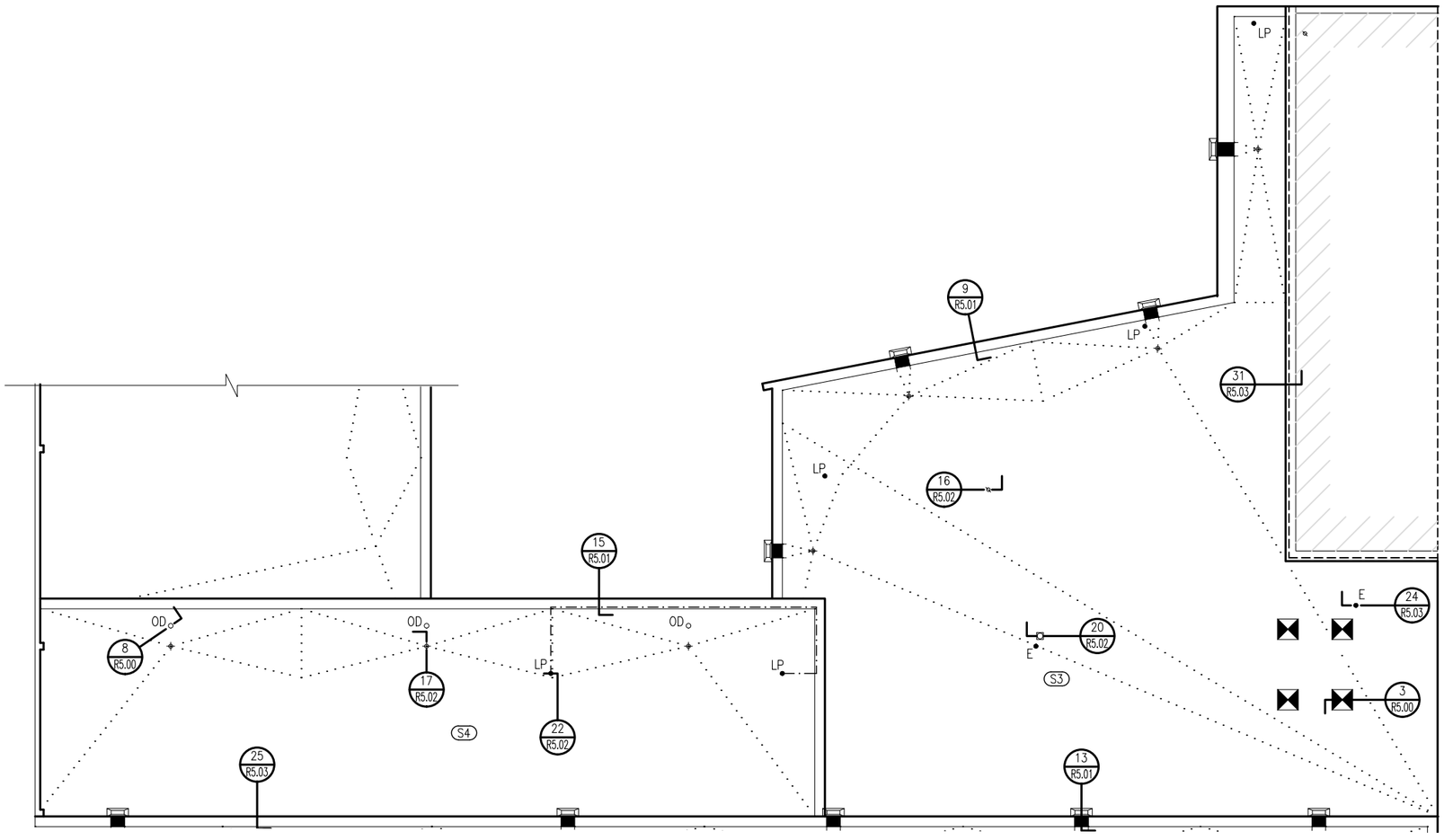
REVISIONS

NO.	DATE	BY

NEW PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.07



LEGEND

- OVERFLOW DRAIN
- ROOF DRAIN
- WALL DRAIN
- SUMPED DRAIN
- POWER VENT
- CURBED VENT STACK
- CURBED TURBINE VENT
- ABANDONED PENETRATION
- PIPING ON HANGERS
- PIPING ON SUPPORTS
- PIPING ON CURBS
- CONDENSATION DRAIN LINE
- E — ELECTRICAL CONDUIT
- G — GAS LINE
- MS — MECHANICAL SCREEN
- W — CHILL / HOT WATER
- AT AIR TERMINAL
- LP THROUGH-ROOF CONNECTION
- DUCT PENETRATION
- EQUIPMENT CURB
- VENT / INTAKE
- GRAVITY VENT
- EQUIPMENT ON SUPPORTS
- EQUIPMENT ON PITCH PANS
- EQUIPMENT ON SLEEPERS
- EQUIPMENT ON CURBS
- SATELLITE DISH
- ROOF-MOUNTED LADDER
- CAGED LADDER
- WALL-MOUNTED LADDER
- WALKPAD
- DOOR ACCESS
- LIGHT
- SHINGLE ROOF
- ANTENNA
- A2 AREA IDENTIFICATION
- CORE LOCATION
- LEAK LOCATION
- XX INFRARED I.D.
- TEST LOCATION
- XX PHOTO LOCATION
- PROBE LOCATION
- SUSPECTED WET AREA
- PLUMBING VENT
- HEAT EXHAUST
- CURBED HEAT EXHAUST
- GRAVITY VENT
- GRAVITY VENT
- TURBINE VENT
- MOISTURE RELIEF VENT
- PITCH PAN
- ROUND PENETRATION
- GOOSENECK PENETRATION
- PIPE BOX
- TB TIE-BACK
- DV DAVIT
- EXPANSION JOINT
- ROOF-TO-WALL EXPANSION JOINT
- METAL EDGE
- DOWNSPOUT AND GUTTER
- PARAPET
- THROUGH-WALL SCUPPER
- THROUGH-EDGE SCUPPER
- SCUPPER WITH COLLECTOR HEAD
- WALL THICKNESS INDICATOR
- WALL HEIGHT INDICATOR
- SPLASHBLOCK
- CURBED DUCT PENETRATION
- DUCT ON SUPPORTS
- DUCT ON CURBS
- DUCT ON STEEL
- ROOF HATCH
- SMOKE HATCH
- SKYLIGHT
- STRUCTURAL SKYLIGHT
- STRUCTURAL SKYLIGHT
- CHIMNEY
- ROUND GOOSENECK
- SQUARE GOOSENECK
- RISE-WALL
- GUY WIRE ANCHOR
- TILE ROOF
- METAL ROOF
- COLUMN

1 R2.08 NEW PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREAS "S3" AND "S4"

SCALE: 1"=20'-0"(11"x17"); 1"=10'-0"(22"X34")

STATE OF TEXAS
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REGISTERED PROFESSIONAL ENGINEER
11/7/22
F-3814

PRICE CONSULTING, INC.
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211 HIGHLAND CROSS, SUITE 220
HOUSTON, TEXAS 77073
PHONE: (281)209-1724 FAX: (281)209-2724

PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

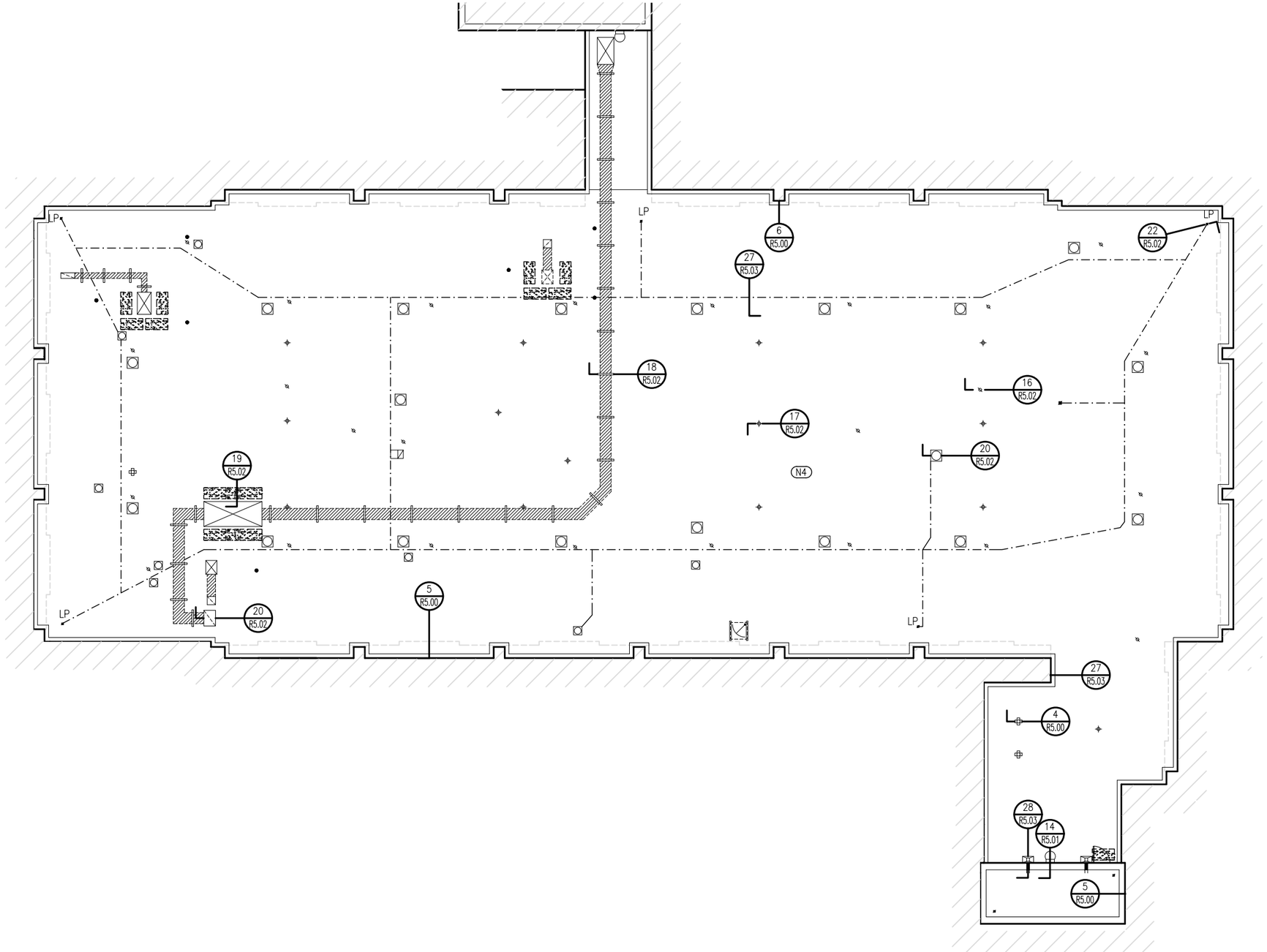
REVISIONS

NO.	DATE	BY

NEW PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.08



LEGEND

- OVERFLOW DRAIN
- ROOF DRAIN
- WALL DRAIN
- SUMPED DRAIN
- POWER VENT
- CURBED VENT STACK
- CURBED TURBINE VENT
- ABANDONED PENETRATION
- PIPING ON HANGERS
- PIPING ON SUPPORTS
- PIPING ON CURBS
- CONDENSATION DRAIN LINE
- E — ELECTRICAL CONDUIT
- G — GAS LINE
- MS — MECHANICAL SCREEN
- W — CHILL / HOT WATER
- AT AIR TERMINAL
- LP THROUGH-ROOF CONNECTION
- DUCT PENETRATION
- EQUIPMENT CURB
- VENT / INTAKE
- GRAVITY VENT
- EQUIPMENT ON SUPPORTS
- EQUIPMENT ON PITCH PANS
- EQUIPMENT ON SLEEPERS
- EQUIPMENT ON CURBS
- SATELLITE DISH
- ROOF-MOUNTED LADDER
- CAGED LADDER
- WALL-MOUNTED LADDER
- WALKPAD
- DOOR ACCESS
- LIGHT
- SHINGLE ROOF
- ANTENNA
- A2 AREA IDENTIFICATION
- CORE LOCATION
- LEAK LOCATION
- XX INFRARED I.D.
- TEST LOCATION
- XX PHOTO LOCATION
- XX PROBE LOCATION
- SUSPECTED WET AREA
- PLUMBING VENT
- HEAT EXHAUST
- CURBED HEAT EXHAUST
- GRAVITY VENT
- GRAVITY VENT
- TURBINE VENT
- MOISTURE RELIEF VENT
- PITCH PAN
- ROUND PENETRATION
- GOOSENECK PENETRATION
- PIPE BOX
- TB TIE-BACK
- DV DAVIT
- EXPANSION JOINT
- ROOF-TO-WALL EXPANSION JOINT
- METAL EDGE
- DOWNSPOUT AND GUTTER
- PARAPET
- THROUGH-WALL SCUPPER
- THROUGH-EDGE SCUPPER
- SCUPPER WITH COLLECTOR HEAD
- WALL THICKNESS INDICATOR
- WALL HEIGHT INDICATOR
- SPLASHBLOCK
- CURBED DUCT PENETRATION
- DUCT ON SUPPORTS
- DUCT ON CURBS
- DUCT ON STEEL
- ROOF HATCH
- SMOKE HATCH
- SKYLIGHT
- STRUCTURAL SKYLIGHT
- STRUCTURAL SKYLIGHT
- CHIMNEY
- ROUND GOOSENECK
- SQUARE GOOSENECK
- RISE-WALL
- GUY WIRE ANCHOR
- TILE ROOF
- METAL ROOF
- COLUMN

STATE OF TEXAS
KARL A. SCHAACK
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REGISTERED
PROFESSIONAL ENGINEER
11/7/22
F-3814

1 R2.09 NEW PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "N4"

SCALE: 1"=20'-0"(11"X17"); 1"=10'-0"(22"X34")

PRICE CONSULTING, INC.
PRICE CONSULTING, INC.
211 HIGHLAND CROSS, SUITE 220
HOUSTON, TEXAS 77073
PHONE: (281)209-1724 FAX: (281)209-2724

PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

REVISIONS

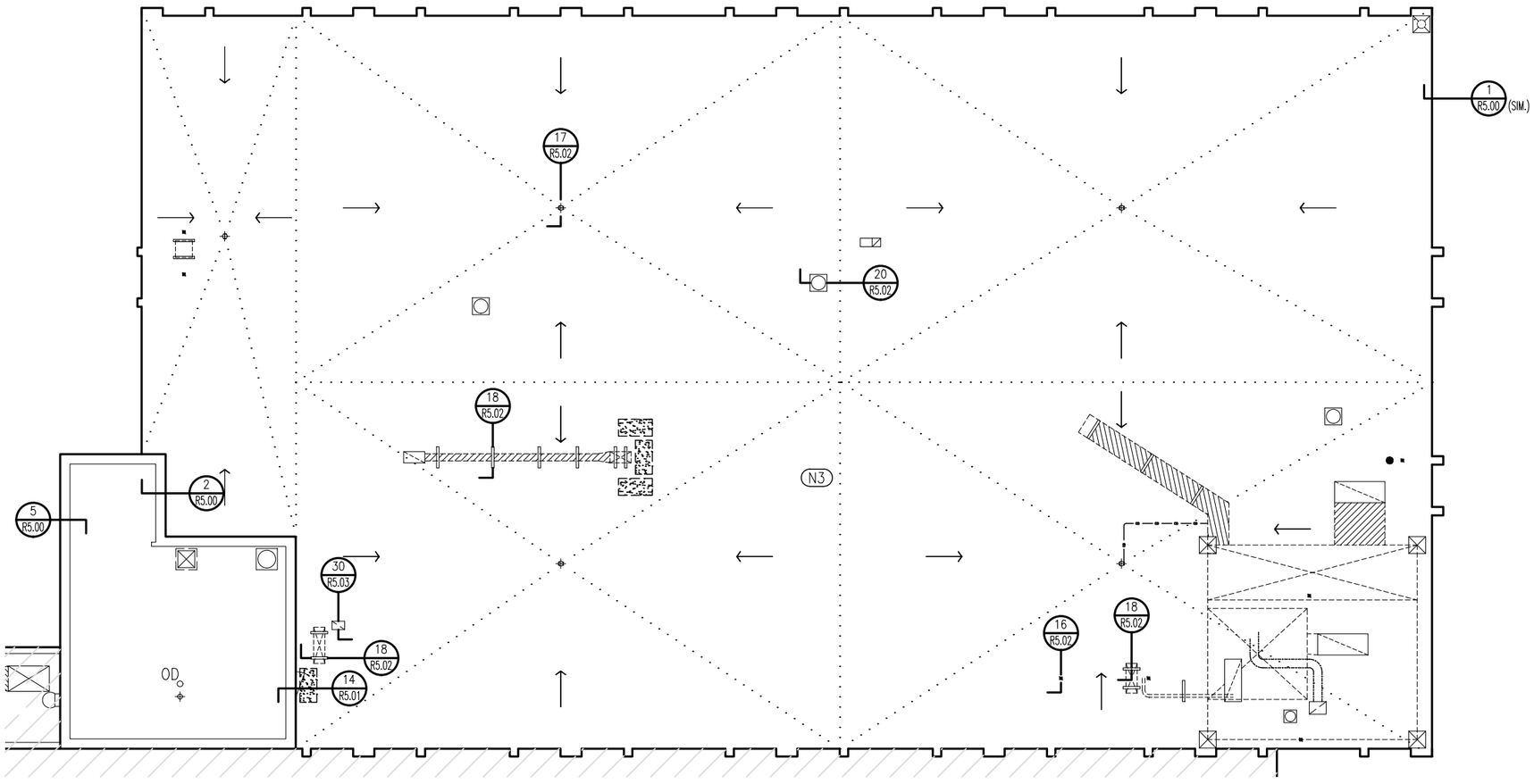
NO.	DATE	BY

NEW PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

DWN.BY: ESG
DATE: 11/7/22

SHEET: R2.09



LEGEND

OD OVERFLOW DRAIN	PLUMBING VENT
ROOF DRAIN	HEAT EXHAUST
WALL DRAIN	CURBED HEAT EXHAUST
SUMPED DRAIN	GRAVITY VENT
POWER VENT	GRAVITY VENT
CURBED VENT STACK	TURBINE VENT
CURBED TURBINE VENT	MOISTURE RELIEF VENT
ABANDONED PENETRATION	PITCH PAN
PIPING ON HANGERS	ROUND PENETRATION
PIPING ON SUPPORTS	GOOSENECK PENETRATION
PIPING ON CURBS	PIPE BOX
CD CONDENSATION DRAIN LINE	TB TIE-BACK
E ELECTRICAL CONDUIT	DV DAVIT
G GAS LINE	EXPANSION JOINT
MS MECHANICAL SCREEN	ROOF-TO-WALL EXPANSION JOINT
W CHILL / HOT WATER	METAL EDGE
AT AIR TERMINAL	DOWNSPOUT AND GUTTER
LP THROUGH-ROOF CONNECTION	PARAPET
DUCT PENETRATION	THROUGH-WALL SCUPPER
EQUIPMENT CURB	THROUGH-EDGE SCUPPER
VENT / INTAKE	SCUPPER WITH COLLECTOR HEAD
GRAVITY VENT	WALL THICKNESS INDICATOR
EQUIPMENT ON SUPPORTS	WALL HEIGHT INDICATOR
EQUIPMENT ON PITCH PANS	SPLASHBLOCK
EQUIPMENT ON SLEEPERS	CURBED DUCT PENETRATION
EQUIPMENT ON CURBS	DUCT ON SUPPORTS
SATELLITE DISH	DUCT ON CURBS
ROOF-MOUNTED LADDER	DUCT ON STEEL
CAGED LADDER	ROOF HATCH
WALL-MOUNTED LADDER	SMOKE HATCH
WALKPAD	SKYLIGHT
DOOR ACCESS	STRUCTURAL SKYLIGHT
LIGHT	STRUCTURAL SKYLIGHT
SHINGLE ROOF	CHIMNEY
ANTENNA	ROUND GOOSENECK
A2 AREA IDENTIFICATION	SQUARE GOOSENECK
CORE LOCATION	RISE-WALL
L LEAK LOCATION	GUY WIRE ANCHOR
XX INFRARED I.D.	TILE ROOF
TEST LOCATION	METAL ROOF
XX PHOTO LOCATION	COLUMN
PROBE LOCATION	
SUSPECTED WET AREA	

1 R2.10 NEW PARTIAL ROOF PLAN: BEAUMONT BAPTIST HOSPITAL - AREA "N3"

SCALE: 1/16"=1'-0"(11"x17"); 1/8"=1'-0"(22"X34")

STATE OF TEXAS
KARL A. SCHAACK
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11/7/22
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PROJECT:
BEAUMONT BAPTIST HOSPITAL
3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

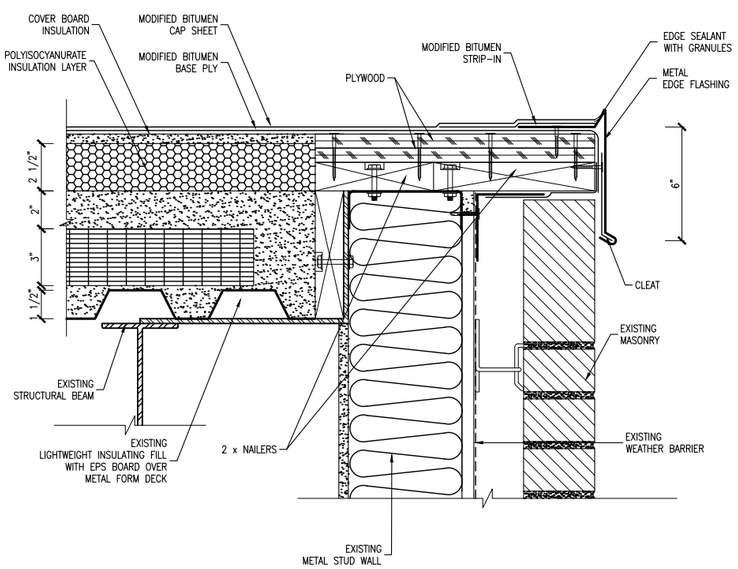
REVISIONS

NO.	DATE	BY

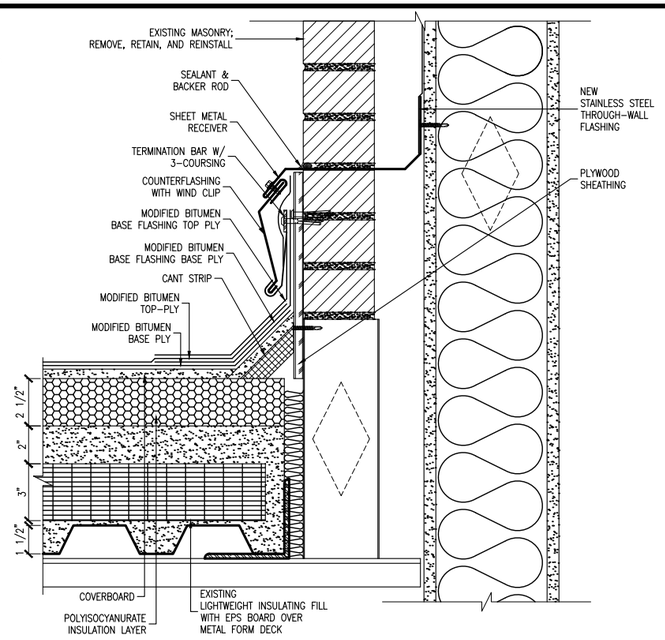
NEW PARTIAL ROOF PLAN
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R2.00-R2.10
SCALE: AS NOTED

NORTH

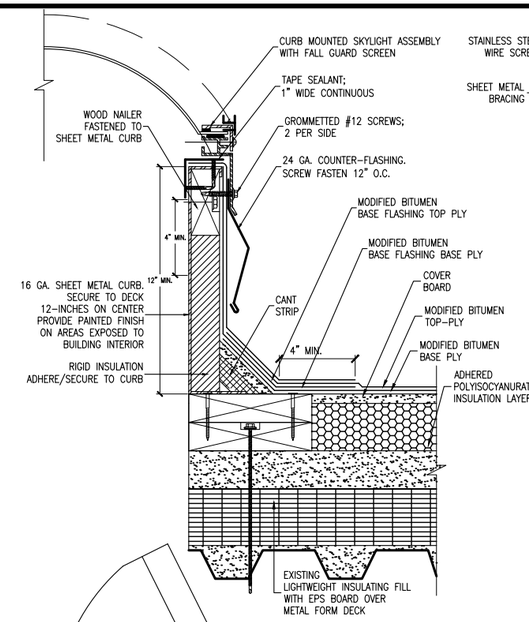
DWN.BY: ESG
DATE: 11/7/22
SHEET: R2.10



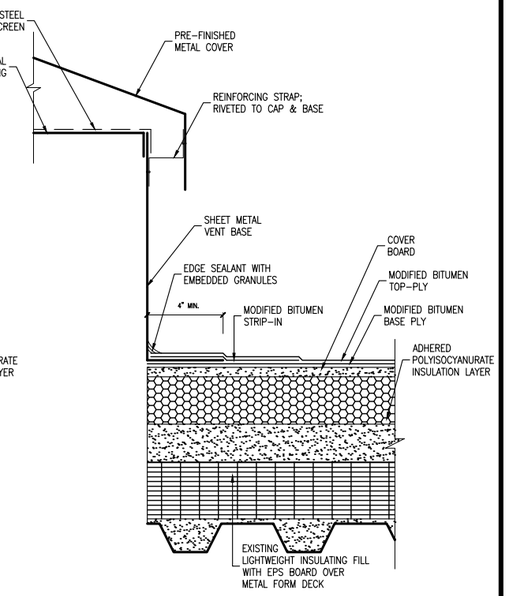
1 R5.00 **ROOF EDGE**
SCALE: NOT TO SCALE



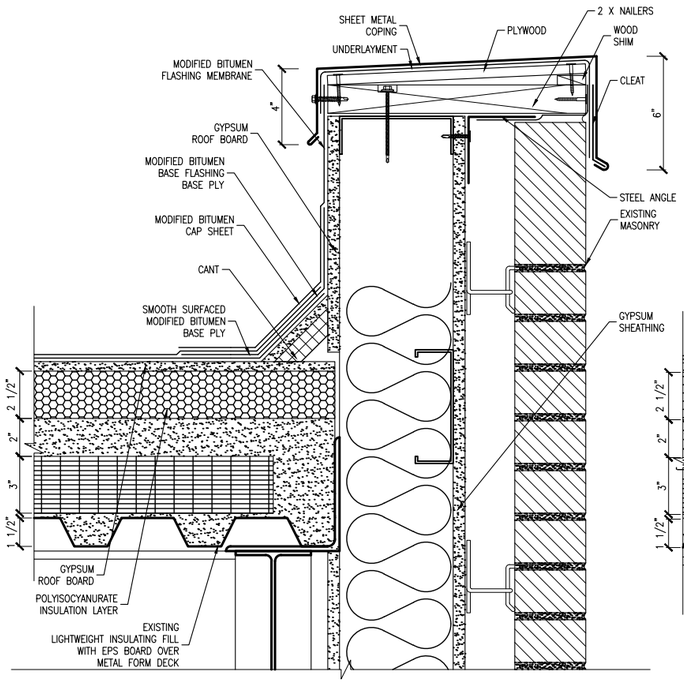
2 R5.00 **RISE WALL**
SCALE: NOT TO SCALE



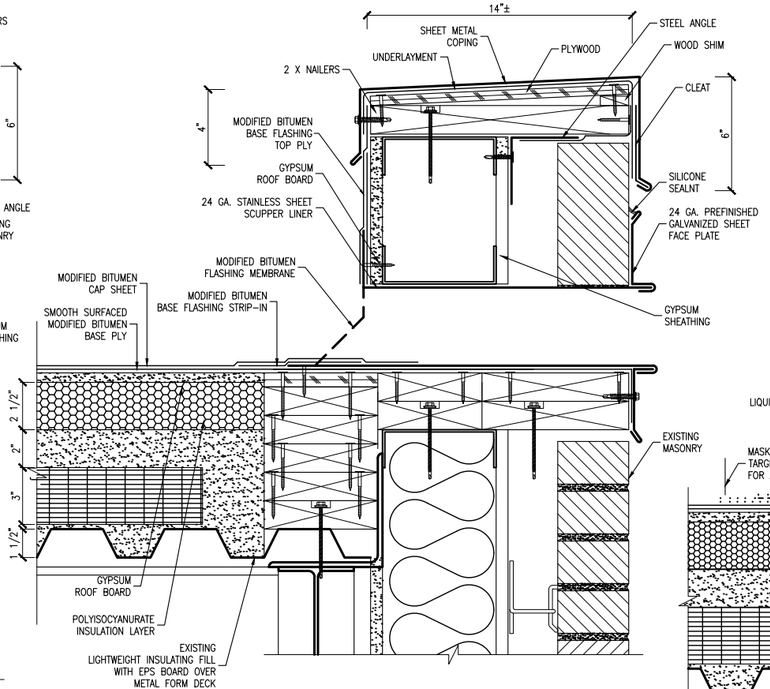
3 R5.00 **SKYLIGHT**
SCALE: NOT TO SCALE



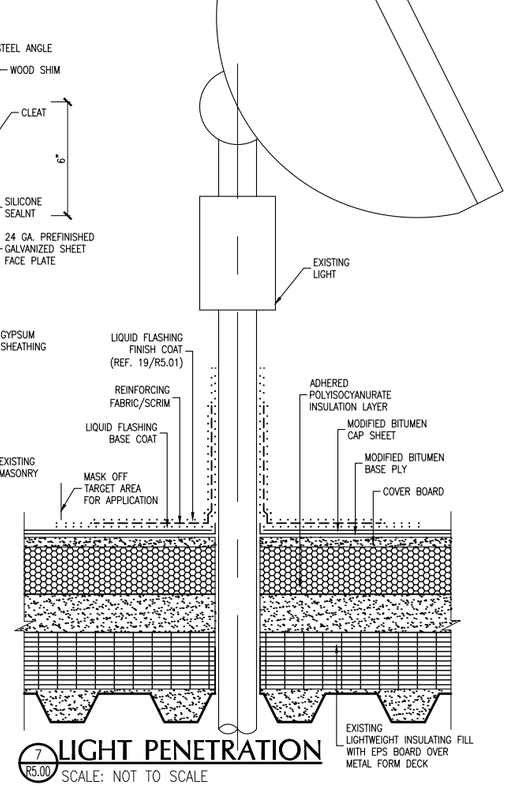
4 R5.00 **GRAVITY VENT**
SCALE: NOT TO SCALE



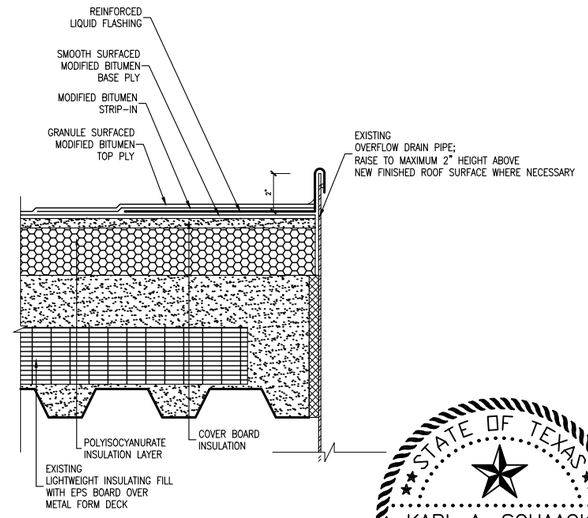
5 R5.00 **PARAPET WALL**
SCALE: NOT TO SCALE



6 R5.00 **SCUPPER**
SCALE: NOT TO SCALE



7 R5.00 **LIGHT PENETRATION**
SCALE: NOT TO SCALE



8 R5.00 **OVERFLOW PIPE DRAIN**
SCALE: NOT TO SCALE

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3080 COLLEGE ST
BEAUMONT, TEXAS

OWNER/CLIENT:
BAPTIST HOSPITALS OF SOUTHEAST TEXAS
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

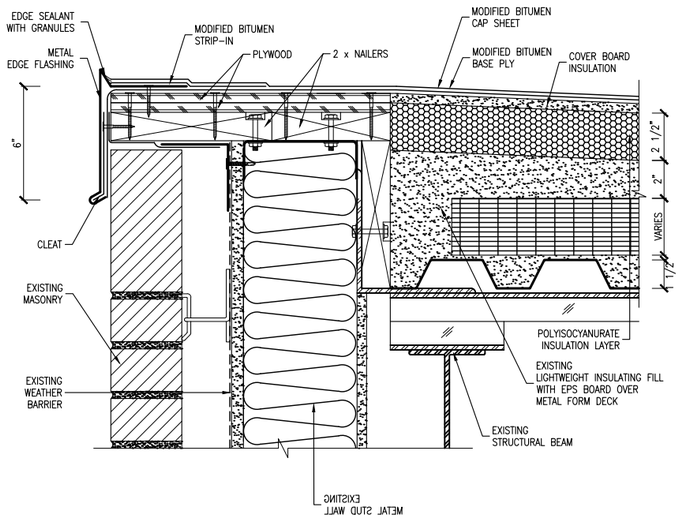
REVISIONS

NO.	DATE	BY

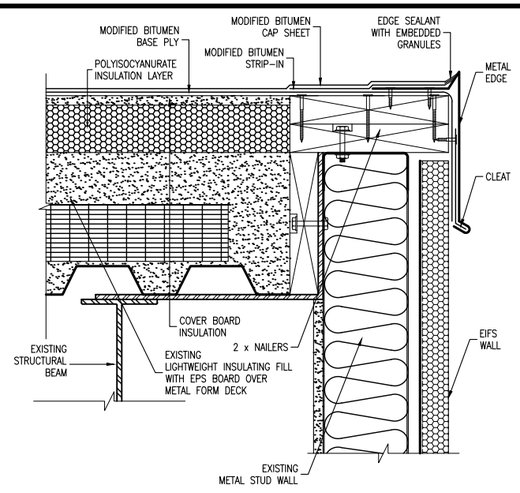
DETAILS
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R5.00-R5.04
SCALE: AS NOTED

DWN.BY: ESG | DATE: 11/7/22

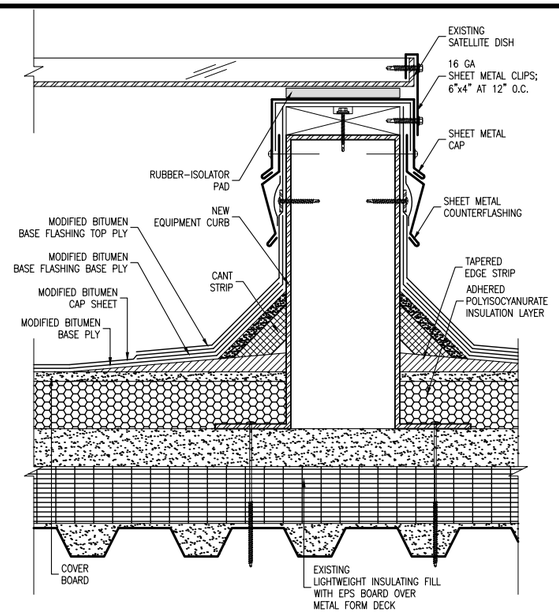
SHEET: R5.00



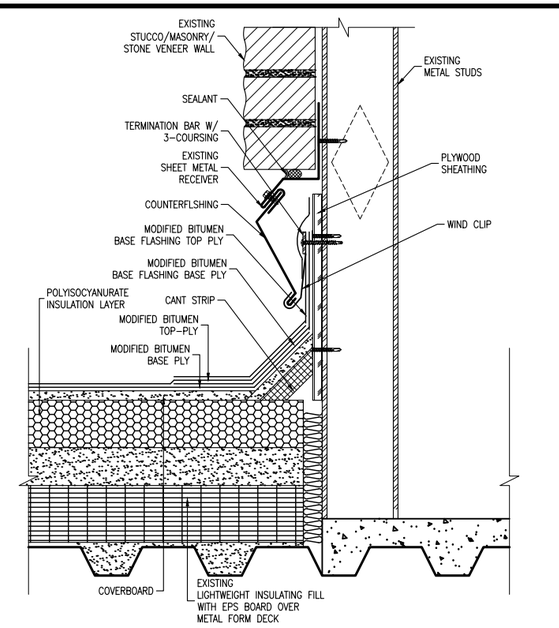
9 R5.01 ROOF EDGE
SCALE: NOT TO SCALE



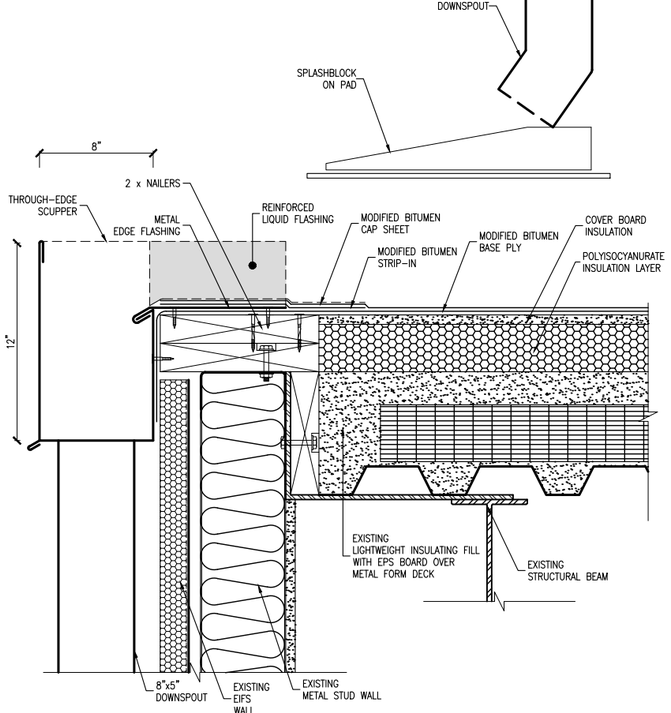
10 R5.01 ROOF EDGE
SCALE: NOT TO SCALE



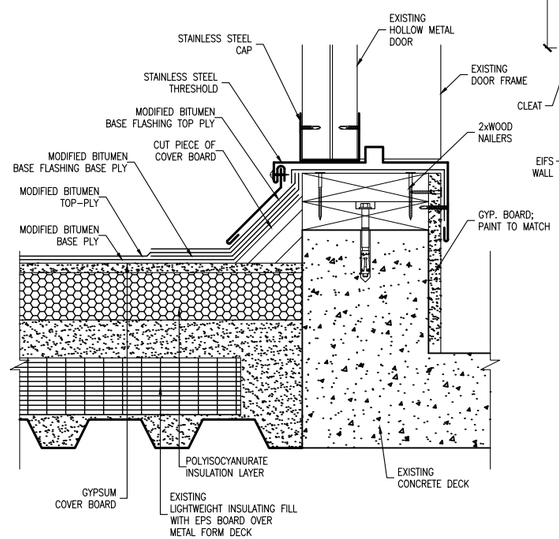
11 R5.01 SATELITTE DISH SUPPORT
SCALE: NOT TO SCALE



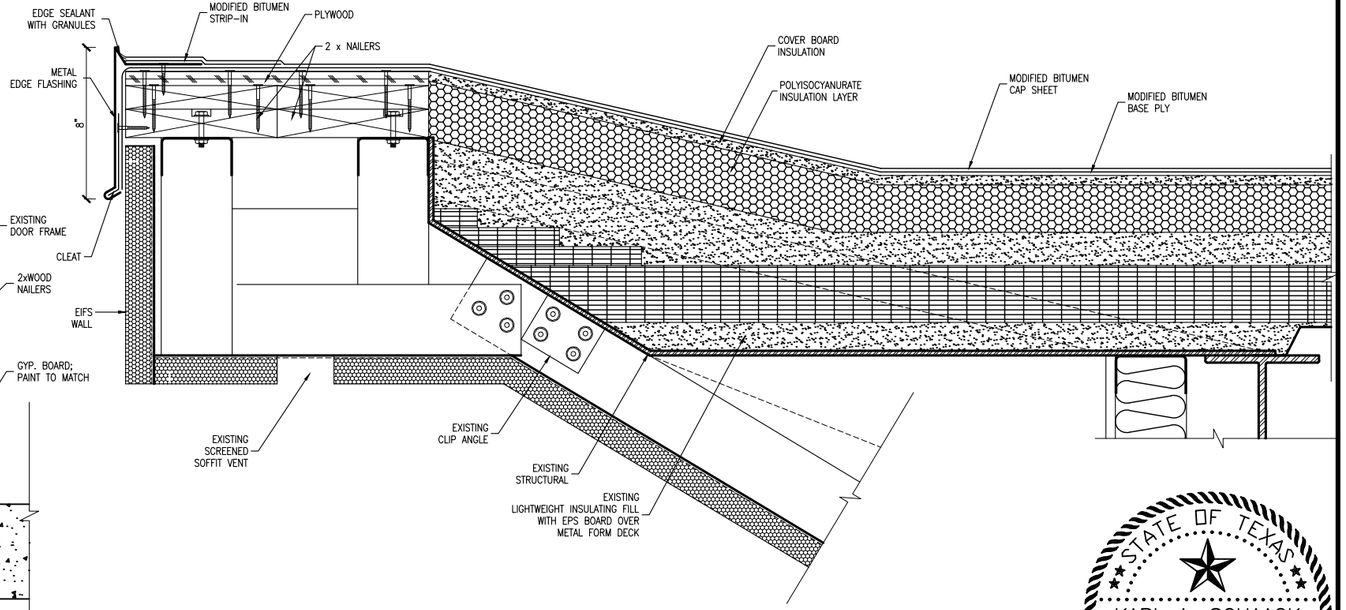
12 R5.01 RISE WALL
SCALE: NOT TO SCALE



13 R5.01 THROUGH-EDGE OVERFLOW SCUPPER
SCALE: NOT TO SCALE



14 R5.01 DOOR THRESHOLD
SCALE: NOT TO SCALE



15 R5.01 ROOF EDGE
SCALE: NOT TO SCALE

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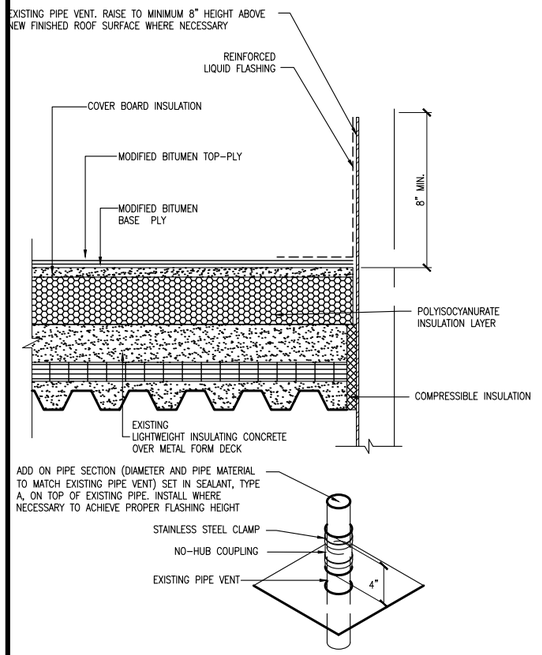
BEAUMONT, TEXAS 77702

REVISIONS

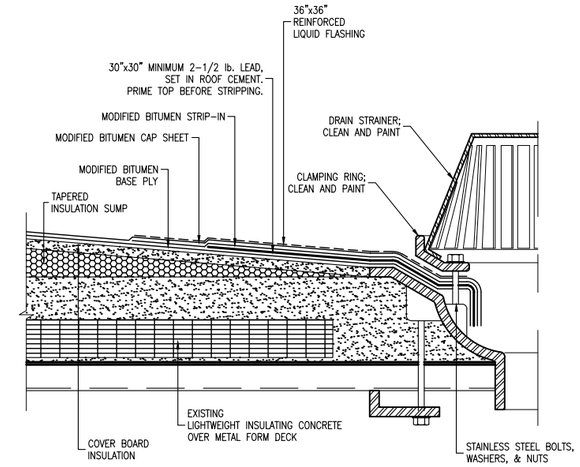
NO.	DATE	BY

DETAILS
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R5.00-R5.04
SCALE: AS NOTED

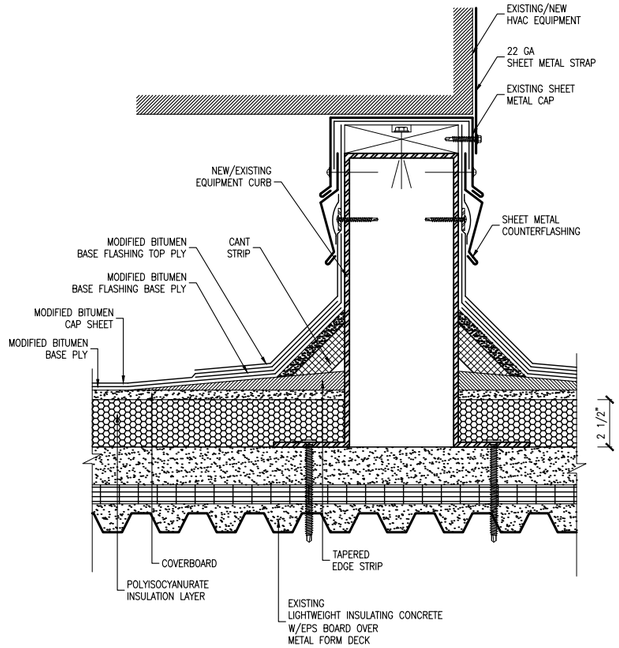
DWN.BY: ESG
DATE: 11/7/22
SHEET: R5.01



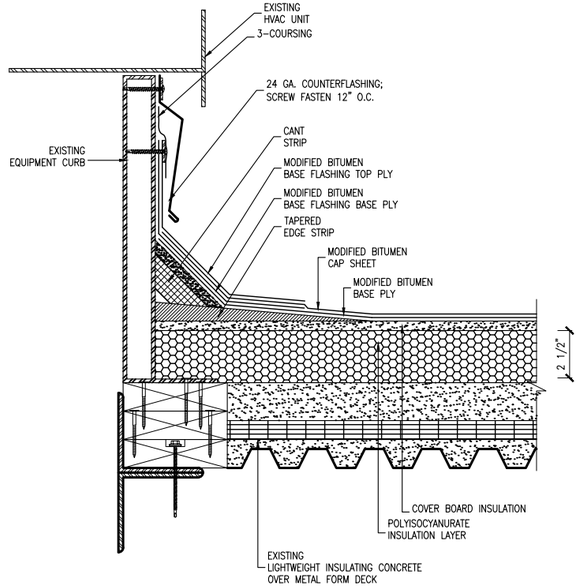
16 R5.02 PLUMBING VENT
SCALE: NOT TO SCALE



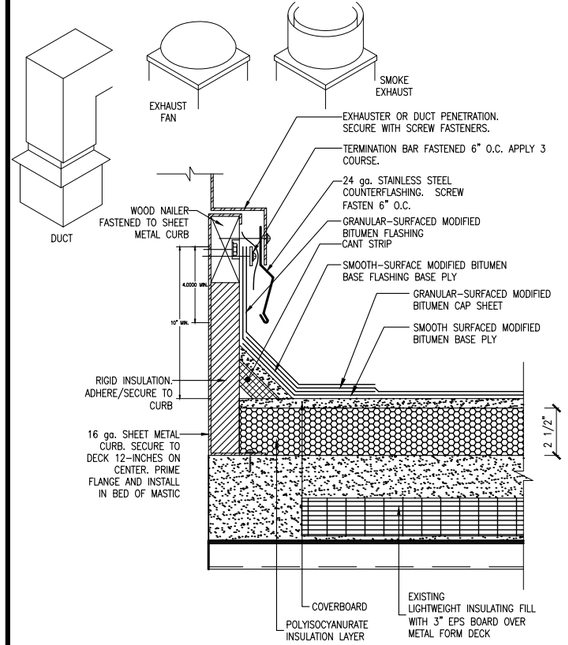
17 R5.02 ROOF DRAIN
SCALE: NOT TO SCALE



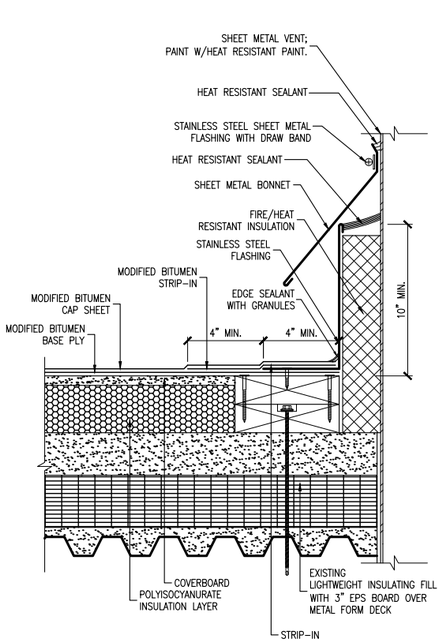
18 R5.02 EQUIPMENT SUPPORT
SCALE: NOT TO SCALE



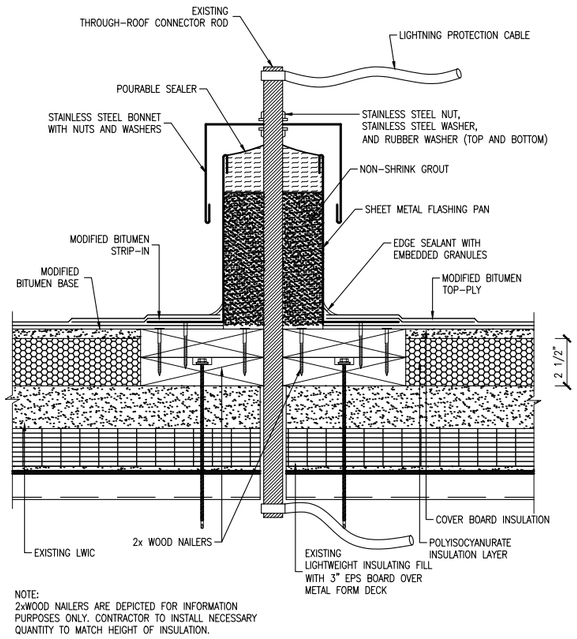
19 R5.02 ROOF TOP UNIT
SCALE: NOT TO SCALE



20 R5.02 EQUIPMENT CURB
SCALE: NOT TO SCALE

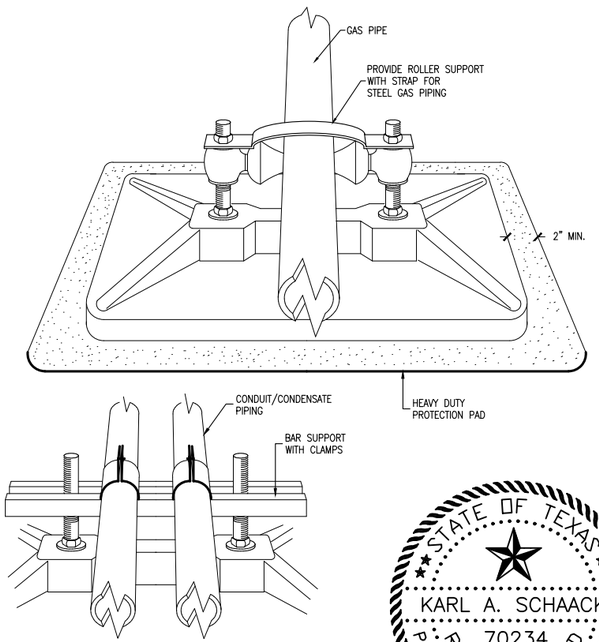


21 R5.02 HEAT VENT
SCALE: NOT TO SCALE



NOTE:
2xWOOD NAILERS ARE DEPICTED FOR INFORMATION PURPOSES ONLY. CONTRACTOR TO INSTALL NECESSARY QUANTITY TO MATCH HEIGHT OF INSULATION.

22 R5.02 LIGHTNING PROTECTION SYSTEM
SCALE: NOT TO SCALE



23 R5.02 PIPE SUPPORT
SCALE: NOT TO SCALE

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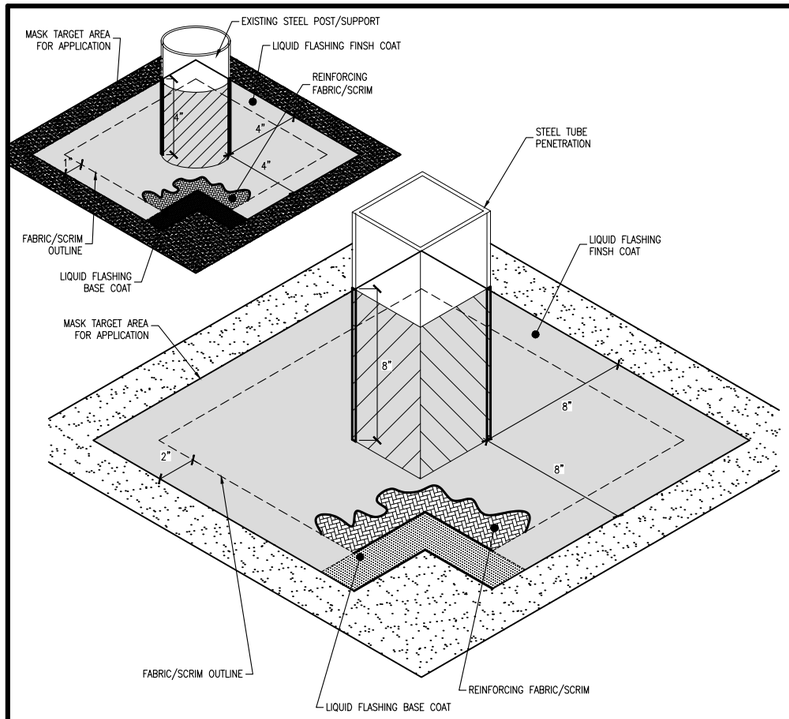
REVISIONS

NO.	DATE	BY

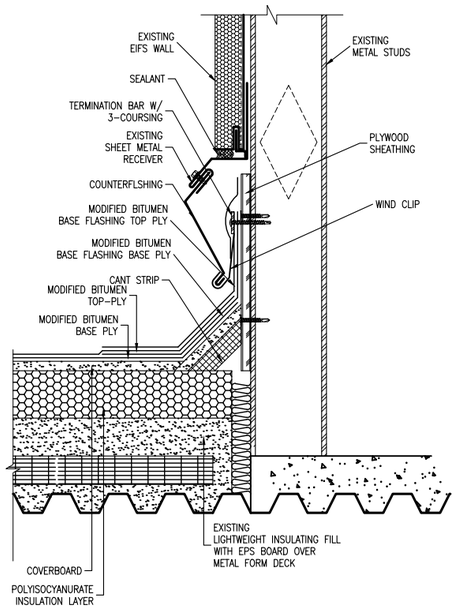
DETAILS
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R5.00-R5.04
SCALE: AS NOTED

DWN.BY:	DATE:
ESG	11/7/22

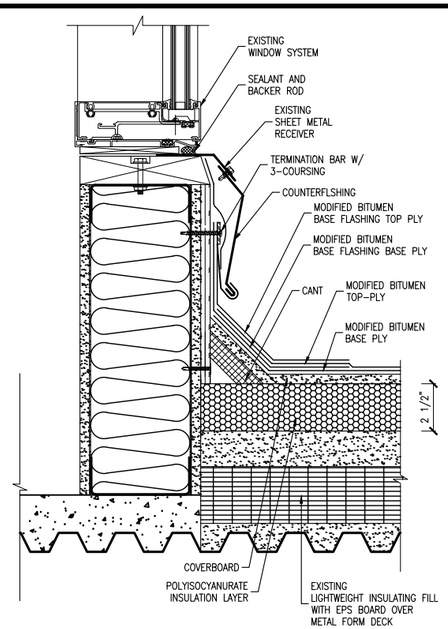
SHEET: R5.02



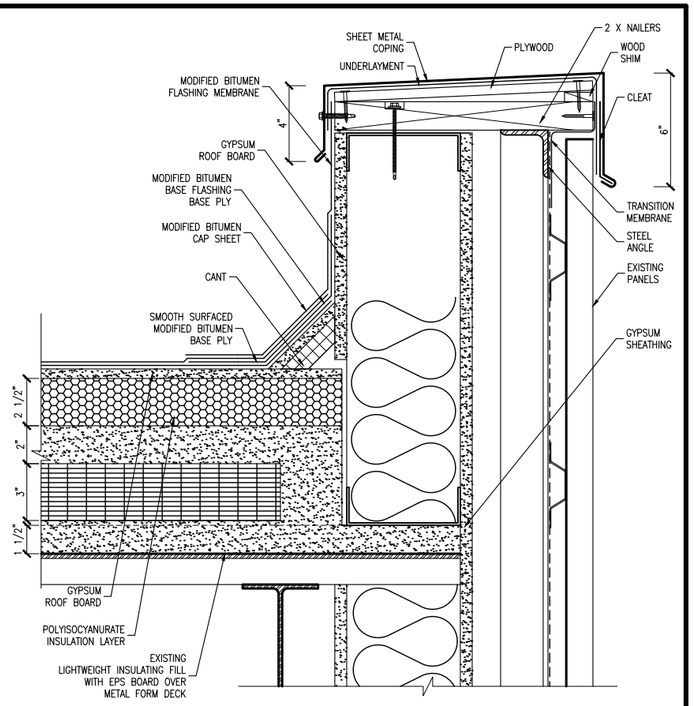
24 R5.03 LIQUID FLASHING AT PENETRATION
SCALE: NOT TO SCALE



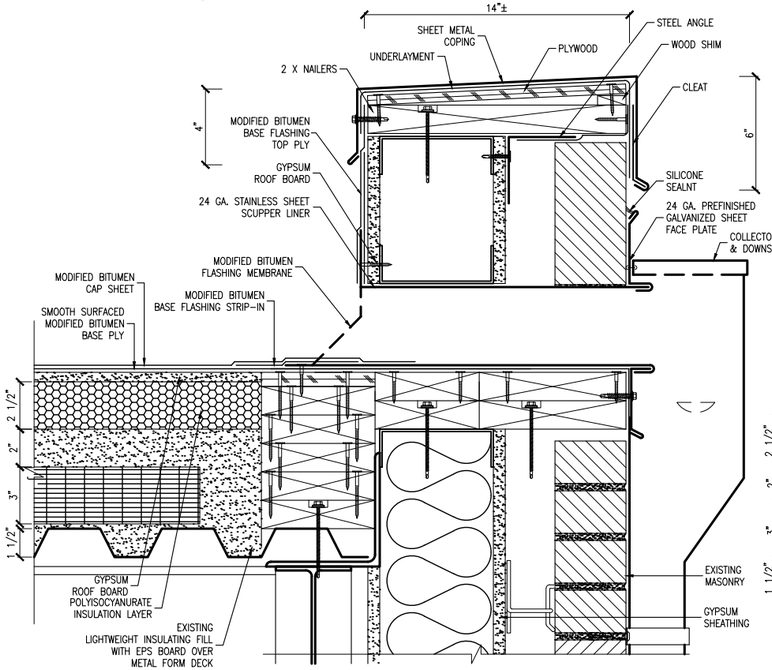
25 R5.03 RISE WALL
SCALE: NOT TO SCALE



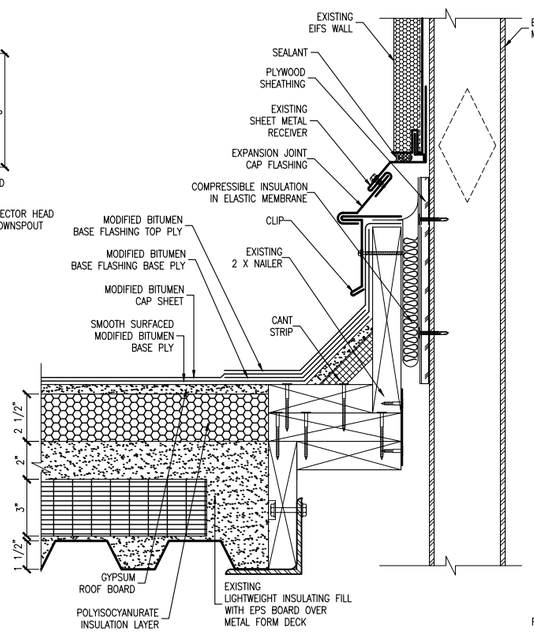
26 R5.03 RISE WALL AT WINDOW
SCALE: NOT TO SCALE



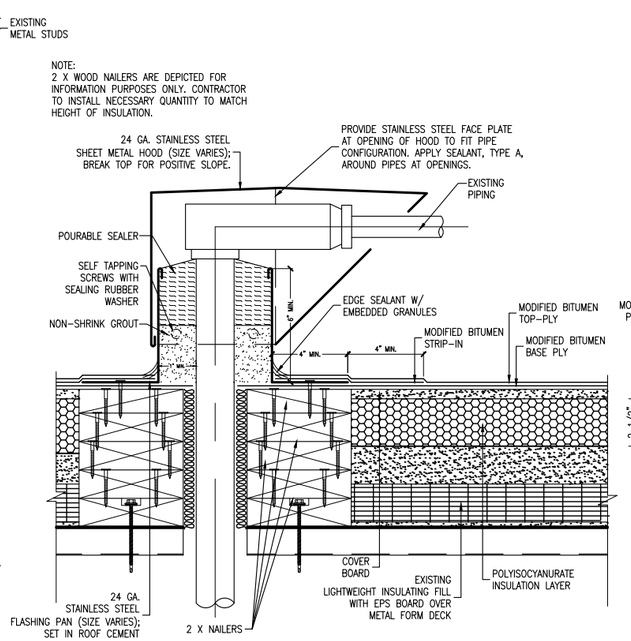
27 R5.03 PARAPET WALL
SCALE: NOT TO SCALE



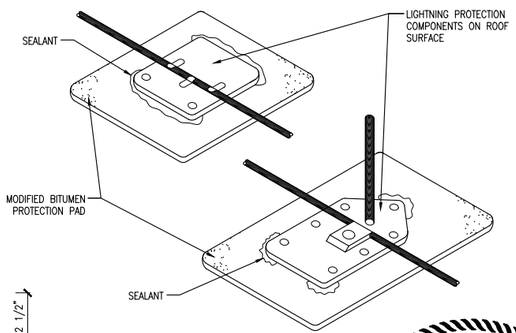
28 R5.03 SCUPPER
SCALE: NOT TO SCALE



29 R5.03 EXPANSION JOINT AT RISE WALL
SCALE: NOT TO SCALE



30 R5.03 PIPE BOX
SCALE: NOT TO SCALE



31 R5.03 LIGHTNING PROTECTION SYSTEM
SCALE: NOT TO SCALE

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BEAUMONT, TEXAS

OWNER/CLIENT:
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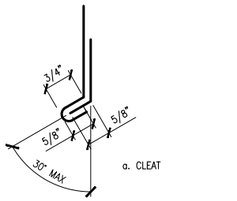
3080 COLLEGE ST
BEAUMONT, TEXAS 77702

REVISIONS

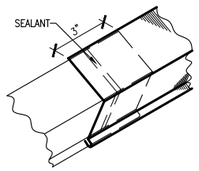
NO.	DATE	BY

DETAILS
PCI PROJECT NO.: 12071.22
PCI FILE NAME: R5.00-R5.04
SCALE: AS NOTED

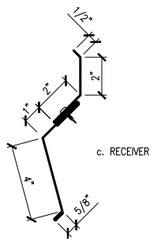
DWN.BY: ESG
DATE: 11/7/22
SHEET: R5.03



a. CLEAT



b. COUNTERFLASHING
LAP JOINT



c. RECEIVER

32 R5.04 MISCELLANEOUS FLASHING DETAILS

SCALE: NOT TO SCALE

STATE OF TEXAS
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11/7/22
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PRICE CONSULTING, INC.	PROJECT:	OWNER/CLIENT:	REVISIONS	DETAILS		DWN.BY: ESG / DATE: 11/7/22
211 HIGHLAND CROSS, SUITE 220	BEAUMONT BAPTIST HOSPITAL	BAPTIST HOSPITALS OF SOUTHEAST TEXAS	NO. DATE BY	PCI PROJECT NO.: 12071.22		SHEET: R5.04
HOUSTON, TEXAS 77073	3080 COLLEGE ST	3080 COLLEGE ST		PCI FILE NAME: R5.00–R5.04		
PHONE: (281)209–1724 FAX: (281)209–2724	BEAUMONT, TEXAS	BEAUMONT, TEXAS 77702		SCALE: AS NOTED		