



ST. TAMMANY PARISH

MICHAEL B. COOPER
PARISH PRESIDENT

October 27, 2020

Please find the following addendum to the below-mentioned BID.

Addendum No.:3

Bid#: 20-21-2

Project Name: South Slidell Library Roof

Bid Due Date: Wednesday, November 4, 2020

GENERAL INFORMATION:

1. Due to the pending weather of Hurricane Zeta expected on Wednesday, October 28, 2020, we will reschedule the non-mandatory roof viewing to Friday, October 30, 2020.
 - South Slidell Library 9:00am - 30 Minutes MAX per Contractor. All Contractor encouraged but not required to review roof. All Contractors are to bring their own ladder and be escorted on roof with Library Facilities Staff Member.

End of Addendum # 3



ST. TAMMANY PARISH

MICHAEL B. COOPER
PARISH PRESIDENT

October 23, 2020

Please find the following addendum to the below-mentioned BID.

Addendum No.: 2

Bid#: 20-21-2

Project Name: South Slidell Library Roof

Bid Due Date: Wednesday, November 4, 2020

GENERAL INFORMATION:

1. Mandatory Pre-Bid Sign in Sheet. (Attached)
2. NON-MANDATORY Roof Review meeting, **Wednesday, October 28, 2020 9:00am** – 30 Minutes MAX per Contractor. All Contractor encouraged but not required to review roof. All Contractors are to bring their own ladder and will be escorted on roof with Library Facilities Staff Member.
3. Last day for the Addendum Friday, October 30, 2020 2:00 pm.

ATTACHMENTS:

1. Mandatory Pre-Bid Sign in Sheet.pdf

End of Addendum # 2

3901 Pontchartrain
Blvd Slidell, La 70458

Pre-Bid Sign-In Sheet
SOUTH SLIDELL LIBRARY ROOF

	Name	Company	Email	Phone	Time In	Time Out
1	Matty Baker	Fischer's Inc	matty@fisherroofing.com	504 450-2061	9:00am	9:21
2	Gregory Hefner	Calleshore Roofing Co	greg@calleshoreroofing.com	504-615-8820	9:00	9:25
3	Raymond Deal	Ray Bros Inc	raymond@raybrosinc.com	504-858-2493	8:45	9:22
4	GINORAY	RAY BROS INC	GINO@RAYBROSINC.COM	504-289-2427	8:47	9:24
5	Frank Montalbano	Progressive Roofing	Frank.Montalbano@ProgressiveRoofing.com	504-312-0199	8:55	9:24
6	Cesar Pagan	Roofing Solutions	cpagan@roofing-solutions.com	225 364 1201	8:55	9:22
7	Keith Smith	Roof Tech	Keith@rooftech.com	504 301-5112	9:00	9:22
8	Scott Schneidewind	THE GARLAND CO. INC	sschneidewind@garlandinc.com	825 366 5179	9:00	9:20
9	Tanya DiMaggio	STPL	tanya@stpl.us	985-625-1931	9:00	9:25
10	John Bennett	STPL	John@stpl.us	985 778 1821	9:00	9:25
11	Kenwood Fields	STPG	istieck@stpgov.com	985 710 4469	9:00	9:32
12	Dennis Orsini	Garland	Dennis@garlandinc.com	225 363 5883	9:00	9:28



ST. TAMMANY PARISH

MICHAEL B. COOPER
PARISH PRESIDENT

October 14, 2020

Please find the following addendum to the below-mentioned BID.

Addendum No.: 1

Bid#: 20-21-2

Project Name: South Slidell Library Roof

Bid Due Date: Wednesday, November 4, 2020

GENERAL INFORMATION:

1. **Replace** "Section 01- Table of Content" with "Section 01 Table of Content Revised." (Attached)
2. **Replace** "Section 03- Summary of Work/Project Specifications" with "Section 03 Summary of Work / South Slidell Library Roof Specifications Revised." (Attached)
3. **Add** "Section 09- South Slidell Library Roof Inspection Report" to the Bid Proposal"(Attached)
4. **Add** "Section 10 South Slidell Library Roof Plan and Details" to the Bid Proposal."(Attached)

ATTACHMENTS:

1. Section 01- Table of Content Revised.pdf
2. Section 03- Summary of Work/ South Slidell Library Roof Specifications Revised.pdf
3. Section 09- South Slidell Library Roof Inspection Report.pdf
4. Section 10- South Slidell Library Roof Plan and Details.pdf

End of Addendum # 1

Section 01

Table of Contents
Revised

Section 01	Table of Contents
Section 02	Instructions to Bidders
Section 03	Summary of Work/ South Slidell Library Roof Specifications
Section 04	LA Uniform Public Work Bid Form
Section 05	Affidavits, Louisiana (Pursuant to LSA-R.S. 38:2224, 38:2227 and 38:2212.10)
Section 06	Insurance Requirements
Section 07	Project Sign
Section 08	General Conditions
Section 09	South Slidell Library Roof Inspection Report
Section 10	South Slidell Library Roof Plan and Details

Section 03
Summary of Work / South Slidell Library Roof Specifications
Revised

PART 1 GENERAL

1.01 SUMMARY

A. Project Summary:

1. Remove existing roofing, insulation and related sheet metal items down to the metal deck.
2. Raise existing curbs, expansion joints and equipment to a minimum of 8" above finished roof elevation.
3. Install wood blocking at parapet walls and roof areas indicated on plans to match new insulation height.
4. Re-secure metal decking in Zone 3 as specified.
5. Mechanically attach specified insulation as specified.
6. Mechanically attach specified tapered insulation and install specified gypsum board in ribbons of adhesive.
7. Heat fuse one ply of SBS modified base sheet over gypsum board in shingle fashion.
8. Fabricate and install new gutter, straps, brackets and downspouts as specified.
9. Fabricate and install all miscellaneous sheet metal items. Strip in with SBS modified base sheet.
10. Flash all wall flashing and curb type penetrations with one ply of the specified SBS modified base sheet.
11. Install one ply of a high-performance mineral surfaced modified cap sheet across the field of the roof and up 2" above cant strip.
12. Install one ply of a high-performance mineral surfaced modified cap sheet at all wall flashing and curb type penetrations. Immediately broadcast granules into bleed out.
13. Provide and install new metal walls as specified.
14. Fabricate and install new counter flashings as required.
15. Inspect roof area with Owner and Owner's rep prior to surfacing.
16. After 30 days, apply two coats of the specified coating.
17. Issue Owner specified warranty.

C. Particular project requirements:

1. Existing site conditions and restrictions: The building will be occupied at the time of construction and care must be taken not to disturb normal operations of the occupants.

D. Permits: Apply for, obtain, and pay for permits required to perform the work. Submit copies to Owner.

E. Codes: Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices and similar communications to Owner.

F. Dimensions: Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.

SECTION 01010

SUMMARY OF WORK

- G. Existing Conditions: Notify Owner of existing conditions differing from those indicated on the drawings. Do not remove or alter structural components without prior written approval.
- H. Definition for terms used in the Specifications:
1. Provide: Furnish and install, complete with all necessary accessories, ready for intended use. Pay for all related costs.
 2. Approved: Acceptance of item submitted for approval. Not a limitation or release for compliance with the Contract Documents or regulatory requirements. Refer to limitations of "Approved" in General and Supplementary Conditions.
 3. Match Existing: Match existing as acceptable to the Owner.
 4. Intent: Drawings and Specifications are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonable implied or necessary for proper performance of the project shall be included.
 5. Writing Style: Specifications are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, "Provide tile" means Contractor shall provide tile.

PART 2 - PRODUCTS - Not applicable to this Section.

PART 3 - EXECUTION - Not applicable to this Section.

END OF SECTION

South Slidell Library Roof Specifications

SECTION 01045

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide cutting and patching work to properly complete the work of the project, complying with requirements for:
 - 1. Visual requirements, including detailing and tolerances.
 - 2. Inspection, preparation, and performance.
 - 3. Cleaning.
- B. Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Match existing materials for cutting and patching work with new materials conforming to product requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.
- B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.
- C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.
- D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerance for new work.
- E. Clean work area and areas affected by cutting and patching operations.

END OF SECTION

SECTION 1350

SUBSTITUTIONS

1.1 DEFINITIONS

- A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.

1.2 PROCUREMENT SUBSTITUTIONS

- A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.
- B. Procurement Substitution Requests will be received and considered by the Owner when the following conditions are satisfied; otherwise requests will be returned without action:
 - 1. Substitution request must come from the Prime Bidder.
 - 2. Extensive revisions to the Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
 - 3. The request is fully documented and properly submitted.

1.3 SUBMITTALS

- A. Procurement Substitution Request: Submit to Owner. Procurement Substitution Request shall be made in writing and in compliance with the following requirements:
 - 1. Requests for substitution of materials and equipment will be considered if received no later than 7 days prior to date of bid opening.
 - 2. Submittal Format: Submit via mail, fax, or email. Email submissions shall be made in PDF format. Sheet size shall be no larger than 8½ inch x 11 inch.
 - 3. Required Information: Submit the following information:
 - a. Identify the product and/or material to be substituted.
 - b. When submitting multiple items, submit each separately.
 - c. Include related Specifications Sections and drawing number.
 - d. Provide complete documentation on both the product specified and the proposed substitute, include the following information as appropriate:
 - 1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
 - 2) Copies of current, independent third-party test data of salient product or system characteristics.
 - 3) Samples where applicable or when requested by Architect.

SECTION 1350

SUBSTITUTIONS

- 4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - 5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 6) Research reports, where applicable, evidencing compliance with building code in effect for Project.
 - 7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.
- e. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
- f. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.
- B. Owner's Action:
1. Owner may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Owner will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.
- C. Owner's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.
- D. Owner's approval of a particular manufacturer does not suggest or imply any deviation from the Contract Documents. All products shall comply with the drawings and specifications. The Contractor shall note that prior approval will be by manufacturer's name only. The Contractor shall ensure that the products used in preparation of his proposal and proposed to be used on this project, is equivalent to that specified in all aspects. Any material, product, or component found to not be equivalent to that specified will be rejected. Prior approval of one manufacturer does not automatically prior approve any subsidiary, parent, and/or sister company, and their associated products.

END OF SECTION 013350

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

1.01 SUMMARY

- A. Contractor shall provide temporary services and utilities, including utility costs:
 - 1. Telephone. (As required)
 - 2. Toilet facilities.
 - 3. Material storage.

- B. Provide security and protection requirements:
 - 1. Fire extinguisher.
 - 2. Site enclosure barricades.
 - 3. Environmental protection.

- C. Provide personnel support facilities.
 - 1. Sanitary facilities.
 - 2. Drinking water.
 - 3. Cleaning and trash removal.

PART 2 PRODUCTS - Not applicable to this Section

PART 3 EXECUTION - Not applicable to this Section

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SUMMARY

- A. The following are prerequisites to substantial completion. Provide the following:
 - 1. Punch list.
 - 2. Supporting documentation.
 - 3. Certification.

- B. Final payment request with supporting affidavits.
 - 1. Final payment request with supporting affidavits.
 - 2. Completed punch list.
 - 3. Warranties.
 - 4. Final release of liens.
 - 5. Release of surety.

- C. Provide a marked-up set of drawings including changes which occurred during construction.

- D. Provide the following closeout procedures:
 - 1. Submission of record documents.
 - 2. Submission of maintenance manuals.
 - 3. Final cleaning and touch up.
 - 4. Removal of temporary facilities.

PART 2 - PRODUCTS - Not Applicable to this Section

PART 3 - EXECUTION - Not Applicable to this Section

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Blocking on top of walls required for new coping assembly.
 - 2. Wood blocking, cants, and nailers.

1.3 DEFINITIONS

- A. Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. SPIB: The Southern Pine Inspection Bureau.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 3. Provide dressed lumber, S4S, unless noted otherwise.
- B. Maximum Moisture Content of Lumber: 19 percent, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC3b for exterior construction not in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat all rough carpentry unless otherwise indicated.
 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
 3. Rooftop equipment bases and support curbs.
 4. Cants.
- B. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:
 1. Southern Pine; No. 2 grade; SPIB.
 2. Meet the following stress values:
 - a. Fb (min. extreme fiber stress in bending): 1,500 psi. b.
 - E (min. modulus of elasticity): 1,500,000 psi.
- C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, concealed from weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153 or Type 304 stainless steel. Refer to plans and details for any particulars.
- B. Power-Driven Fasteners: NES NER-272. C.
Wood Screws: ASME B18.6.1.
- D. Lag Bolts: ASME B18.2.1.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- C. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative- treated lumber.
 1. Use inorganic boron for items that are continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 1. CABO NER-272 for power-driven fasteners.
 2. Published requirements of metal framing anchor manufacturer.
 3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in the Uniform Building Code.
 4. Table 2305.2, "Fastening Schedule," in the BOCA National Building Code.
 5. Table 2306.1, "Fastening Schedule," in the Standard Building Code.
 6. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in the International One- and Two- Family Dwelling Code.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. ***Attach nailers to substrates to support applied loading and in accordance with FM Global Loss Prevention Data Sheet 1-49.*** Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

3.3 PROTECTION

- A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet or sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution to comply with EPA-registered label.

END OF SECTION

SECTION 07220

ROOF AND DECK INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Polyisocyanurate Roof Insulation.
 - 2. Gypsum Roof Deck Board
- B. Related sections:
 - 1. Division 07 Section "Preparation for Reroofing".
 - 2. Division 07 Section "Sheet Metal Flashing and Trim".
 - 3. Division 07 Section "SBS Modified Bituminous Membrane Roofing".

1.3 REFERENCES

- 1. American Society for Testing and Materials (ASTM):
- 2. ASTM C1396 Standard Specification for Gypsum Wallboard.
- 3. ASTM C1289 Standard Specification for Faced Rigid Polyisocyanurate Thermal Insulation
- 4. ASTM D5 Standard Test Method for Penetration of Bituminous Materials.
- 5. ASTM D5147 Standard Sampling and Testing Modified Bituminous Sheet Material.
- 6. Cast Iron Soil Pipe Institute, Washington, D.C. (CISPI)
- 7. Factory Mutual Research (FM):
 - a. Roof Assembly Classifications.
- 8. National Roofing Contractors Association (NRCA):
 - a. Roofing and Waterproofing Manual.
- 9. Underwriters Laboratories, Inc. (UL):
 - a. Fire Hazard Classifications.
- 10. Warnock Hersey (WH):
 - a. Fire Hazard Classifications.
- 11. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
- 12. Steel Deck Institute, St. Louis, Missouri (SDI)
- 13. Southern Pine Inspection Bureau, Pensacola, Florida (SPIB)
- 14. Insulation Board, Polyisocyanurate (FS HH-I-1972)

1.4 SUBMITTALS

- A. Product Data: Provide manufacturer's specification data sheets for each product.
- B. Roofing System Certification: Submit written certification that the roof deck insulation is acceptable for use by the SBS manufacturer as a component of their roofing system.
- C. Provide a sample of each insulation type.

SECTION 07220

ROOF AND DECK INSULATION

1.5 SHOP DRAWINGS

- A. Submit manufacturer's shop drawings indicating complete installation details including insulation assembly.
- B. Shop drawing shall include: Outline of roof, location of equipment, thickness and the average "R" value for the completed insulation system.
- C. Certification:
 - 1. Submit roof manufacturer's certification that insulation fasteners furnished, are acceptable to roof manufacturer.
 - 2. Submit insulation fasteners, fastening pattern layout(s), and deck/substrate penetration depth(s) that resist the uplift pressures as per the specified SBS modified roofing system.
 - 3. Submit roof manufacturer's certification that insulation furnished and installed is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.
 - 4. Submit written certification that the roof deck insulation is acceptable for use as a component of the SBS manufacturer's roofing system.
 - 5. Submit written certification that the roof deck insulation, used in conjunction with the SBS modified roofing system, passes the test for a fire rated assembly, if required.

1.6 QUALITY ASSURANCE

- A. Fire Classification, ASTM E-108.
- B. Manufacturer's Certificate: Certify that the roof system is adhered properly to resist the uplift pressures as per the specified SBS roofing system.
- C. Pre-installation Meeting: Refer to Division 07 roofing specifications for pre-installation meeting requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- B. Store all insulation materials in a manner to protect them from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.
- C. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins).
- D. Store materials above the ground. Any warped, broken or wet insulation boards shall be removed from the site.

SECTION 07220

ROOF AND DECK INSULATION

1.14 WARRANTY

- A. Special Warranty: Modified Manufacturer agrees to repair or replace components of the insulation assembly within specified warranty period. Total system warranty required (Insulation, Membrane and Metal Flashings).
 - 1. Warranty Period: Thirty (30) Year, "No Dollar Limit" "Edge to Edge" Warranty from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOF DECK INSULATION

- A. Polyisocyanurate Board Insulation ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
 - a. Qualities: Rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers, both sides.
 - b. Thickness: 4" (two layers of 2"), refer to drawing section details.
 - c. R-Value: 21.0 minimum.
 - d. Size: 48 inches square maximum size when installed using adhesive.
 - e. Size: 48 inches x 96 inches maximum size when installed using mechanical fasteners.
 - 1. Subject to compliance with requirements, provide one of the following:
 - a. Hunter H-shield pre-approved equal.
- B. Tapered Polyisocyanurate Roof Insulation, including Tapered Sumps; ASTM C1289:
 - a. Qualities: Factory Tapered, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
 - b. Thickness: 1/2" minimum.
 - c. Size: 48 inches square maximum size when installed using adhesive.
 - d. Size: 48 inches x 96 inches maximum size when installed using mechanical fasteners.
 - g. Tapered Crickets: 1/2" : 12" per foot. To be installed behind equipment.
 - 2. Subject to compliance with requirements, provide one of the following:
 - a. Hunter H-Shield or pre-approved equal.
- C. Gypsum Roof Deck Board: ASTM C 1177 or ASTM C 1278, water-resistant gypsum substrate, Class A Fire Rated, 1/2 inch thick.
 - 1. Subject to compliance with requirements, provide one of the following:
 - a. USG Securock or pre-approved equal.
 - 2. Size: 48 inches square maximum size, installed using adhesive.

SECTION 07220

ROOF AND DECK INSULATION

2.2 RELATED MATERIALS

- A. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board or of perlite or organic fiberboard, as per the approved manufacturer.
 - 1. Acceptable Manufacturers:
 - a. Johns Manville
 - b. GAF
- B. Provide preformed saddles, crickets, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- C. Insulation Adhesive: Dual component high rise foam adhesive as recommended by the insulation manufacturer and membrane manufacturer: Insul-Lock HR by The Garland Company, Inc. or approved equal.
 - 1. Tensile Strength (ASTM D412), 250 psi
 - 2. Density (ASTM D1875), 8.5 lbs. /gal.
 - 3. Viscosity (ASTM D2556), 8,000 to 32,000 cP.
 - 4. Peel Strength (ASTM D903), 17 lb. /in.
 - 5. Flexibility (ASTM D816), Pass @ -70°F
- D. Fasteners: Corrosion resistant screw fastener as recommended and approved by the SBS roofing system manufacturer.
 - 1. METAL DECK AREA: Factory Mutual Tested and Approved #14 fasteners with three (3) inches coated disc, length required to penetrate metal deck one inch by Trufast or equal.

PART 3 - EXECUTION

3.1 EXECUTION, GENERAL

- A. Comply with requirements of Division 01 Section and all project requirements.
- B. Install one lapped base-sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions.
- C. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing system with vertical surfaces or angle changes greater than 45 degrees.
- D. Install tapered insulation under area of roofing to conform to slopes indicated.
- E. Install insulation with long joints of insulation in a continuous straight line, with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.

SECTION 07220

ROOF AND DECK INSULATION

1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- F. Install insulation under area of roofing to achieve specified thicknesses and slopes. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- G. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- H. Install tapered edge strips at perimeter edges as necessary to fill between the roof deck board and the top of blocking, to direct water away from vertical surfaces, and that do not terminate at vertical surfaces.

3.2 INSPECTION OF SURFACES

- A. Roofing contractor shall be responsible for preparing an adequate substrate to receive insulation.
- B. Verify that work which penetrates roof deck has been completed.
- C. Verify that wood nailers are properly and securely installed.
- D. Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness. Do not proceed until defects are corrected.
- E. Do not apply insulation until substrate is sufficiently dry.
- F. Broom clean substrate prior to application.
- G. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.
- H. Proceeding with installation means acceptance of substrate.

3.3 PROTECTION

- A. During execution of work covered in this section, the Contractor shall provide protections for the roof insulation from water and wind penetration at the end of each day's work.
- B. Protect the roof insulation in areas that will receive excessive traffic.
- C. All personnel shall wear clean, soft rubber soled shoes for any application work where they may be walking on insulation boards.

SECTION 07220

ROOF AND DECK INSULATION

3.4 INSTALLATION

A. Attachment with Mechanical Fasteners:

1. Approved insulation board shall be fully attached to the deck with an approved mechanical fastening system. As a minimum, fastening shall be in accordance with the SBS modified roofing system specification to resist the specified uplift pressures at corners, perimeter, and field of roof.
 - a. Attach insulation @ METAL DECK AREA with #14 HD and 3" steel plates.
 - b. Fastening patterns shall resist the wind uplift pressures per IBC 2019 and ASCE 7-10.
2. Placement pattern(s) of fasteners shall be in accordance with the SBS modified roofing system specification to resist the specified uplift pressures. Zone 1 – 24 fasteners per 4x8 board, Zone 2 – 24 fasteners per 4x8 board and Zone 3 – 32 fasteners per 4x8 board. The greater of the two patterns shall be utilized.
3. Minimum fastener penetration depth into deck shall meet or exceed the same pull-out requirements set forth as stated above for uplift pressure resistance. There is a one (1) inch minimum for metal decks.

B. Attachment with Insulation Adhesive:

1. Ensure all surfaces are clean, dry, free of dirt, debris, oils, loose ore embedded gravel, unadhered coatings, deteriorated membrane and other contaminants that may inhibit adhesion.
2. Apply cant strips and miscellaneous pieces of insulation in adhesive directly to the substrate using a ribbon pattern with one half (1/2) inch wide beads continuous.
3. Immediately place insulation boards into wet adhesive. Do not slide boards into place. Do not allow the adhesive to skin over before installing insulation boards.
4. Briefly step each board into place to ensure contact with the adhesive. Substrates with irregular surfaces may prevent the insulation board from making positive contact with the adhesive. Relief cuts or temporary weights may be required to ensure proper contact.
5. All boards shall be cut and fitted where the roof deck intersects a vertical surface. The boards shall be cut to fit a minimum of one quarter (1/4) inch away from the vertical surface.

3.5 CLEANING

- A. Remove debris and cartons from roof deck. Leave insulation clean and dry, ready to receive roofing membrane or roof deck board.

SECTION 07220

ROOF AND DECK INSULATION

3.6 CONSTRUCTION WASTE MANAGEMENT

- A. Remove and properly dispose of waste products generated during installation. Comply with requirements of authorities having jurisdiction.

END OF SECTION

SECTION 07500

PREPARATION FOR REROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Emergency and Temporary Protective Measures.
 - 2. Full tear-off of entire roof down to the existing deck.
 - 3. Removal of gutters, downspouts, wall panels and copings.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.
- B. Full Roof Tear-Off: Removal of existing roofing system, insulation and related sheet metal items from existing roof deck.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, sections, and details.

1.5 INFORMATIONAL SUBMITTALS

- A. Fastener pull-out test report.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Reroofing Conference: Conduct conference at Project site.
 - 1. Meet with Owner; Architect; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; roofing Installer, including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing, including installers of roof deck, roof accessories, and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing system tear-off and replacement, including, but not limited to, the following:
 - a. Reroofing preparation, including roofing system manufacturer's written instructions.
 - b. Temporary protection requirements for existing roofing system components that are scheduled to remain.

SECTION 07500

PREPARATION FOR REROOFING

- c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
- d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
- e. Existing roof deck conditions requiring notification of Architect.
- f. Existing roof deck removal procedures and Owner notifications.
- g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
- h. Structural loading limitations of roof deck during reroofing.
- i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
- j. HVAC shutdown and sealing of air intakes.
- k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
- l. Asbestos removal and discovery of asbestos-containing materials.
- m. Governing regulations and requirements for insurance and certificates if applicable.
- n. Existing conditions that may require notification of Architect before proceeding.

1.7 FIELD CONDITIONS

- A. Existing roofing conditions are based upon core results. It is the sole responsibilities of the contractor to field verify all existing field condition.
- B. Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations are not disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
 - 1. Coordinate work activities daily with Owner so Owner can place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
 - 2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.
- C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- E. Conditions existing at time of inspection for bidding are maintained by Owner as far as practical.
- F. Limit construction loads on roof to for rooftop equipment wheel loads and for uniformly distributed loads.
- G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
 - 1. Remove only as much roofing in one day as can be made watertight in the same day.
- H. Hazardous Materials: It is not expected that hazardous materials, such as asbestos-containing materials, will be encountered in the Work.

SECTION 07500

PREPARATION FOR REROOFING

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

- A. Expanded Polystyrene (EPS) Insulation: ASTM C 578.
- B. Plywood: DOC PS1, Grade CD Exposure 1.
- C. Sheet Polyethylene. Provide weights or fasteners to retain sheeting in position.

2.2 ROOFING MATERIALS

- A. General: Auxiliary re-roofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of new membrane roofing system.
- B. Temporary Protection: Sheet polyethylene. Provide weights to retain sheeting in position.
- C. Quick Dry Primer: Provide primer as approved by roofing manufacturer.
- D. Rust Inhibitive Paint: Provide paint as approved by roofing manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Schedule project site meeting with the Architect, Owner and/or Owner's Field Representative, and Roofing System Manufacturer's Representative to discuss preparations for re-roofing. Refer to Section 07550 – Section 1.5.
- B. Shut off rooftop utilities and service piping before beginning the Work.
- C. Test existing roof drains to verify that they are not blocked or restricted. Immediately notify Architect of any blockages or restrictions.
- D. Protect existing roofing system that is not to be reroofed.
 1. Loosely lay 1-inch- minimum thick, expanded polystyrene (EPS) insulation over existing roofing in areas indicated. Loosely lay 15/32-inch plywood or OSB panels over EPS. Extend EPS past edges of plywood or OSB panels a minimum of 1 inch.
 2. Limit traffic and material storage to areas of existing roofing that have been protected.
 3. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
- E. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.

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Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

- F. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- G. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof- drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecasted.
 - 1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 SCHEDULING

- A. All work shall be scheduled to coincide with commencement of the new roofing system installation.

3.3 EMERGENCY / PROTECTIVE MEASURES

- A. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage in areas of new roofing during construction. A four (4) hour time limit shall be given from time of notification of emergency conditions. In the event of water penetration during rain or storm, the Contractor shall provide for repair or protection of the building contents and interior. If the Contractor does not respond or cannot be contacted, the Owner will perform repairs or emergency action and the Contractor shall be back charged for all expenses and damages, if any.
- B. Provide temporary protective sheeting over uncovered deck surfaces if required.
- C. Turn up sheeting and over parapets and curbing. Retain sheeting in position with weights or temporary fasteners.

3.4 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day.
- B. Full Roof Tear-Off: Remove existing roofing and other roofing system components down to the existing roof deck.
 - 1. Remove roof coverings, roof insulation, and cover board.
 - 2. Remove wood blocking, curbs, and nailers where called for.
 - 3. Inspect remaining wood blocking, curbs, and nailers for deterioration and damage. If wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
 - 4. No debris shall be transported from the area being worked over a newly finished roof without an underlayment of 3/4" exterior plywood. Under no circumstance is debris or tear-off material to be left on the roof overnight. All trash and roofing material shall be removed from the roof on a daily basis.
 - 5. All roof equipment not in use or left filled shall be parked on column lines on top of 3/4" exterior plywood.

SECTION 07500

PREPARATION FOR REROOFING

3.5 DECK PREPARATION

- A. Inspect deck after tear-off of roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect. Do not proceed with installation until directed by the Owner.
- C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect. Do not proceed with installation until directed by Architect.

3.7 SECUREMENT OF EXISTING METAL DECK

- A. Additional securement shall be provided for the attachment of the existing steel deck to the existing structure as detailed below.
 - 1. Zone 3 - Corner Zones: (10' x 10' Area Minimum)
Self drilling/tapping #12 Tek Screws spaced @ 4" o.c. at each supporting structural member.
Fasteners shall be of sufficient length to penetrate the structural member by 1" minimum.

3.8 BASE FLASHING REMOVAL

- A. Remove existing base flashings. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal reglets or counter-flashings that are to remain. Replace metal counter-flashings damaged during removal with counter-flashings of same metal, weight or thickness, and finish.
- C. Inspect wood blocking, curbs, and nailers for deterioration and damage. If parapet sheathing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
- D. Do not permit traffic over unprotected deck surface.

3.9 FASTENER PULL-OUTS

- A. Fastener pull-out testing will be required by a fastener manufacturer. Pull out results shall be included as part of the required submittals.

3.10 DISPOSAL

- A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
 - 1. Storage or sale of demolished items or materials on-site is not permitted.
 - 2. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION

SECTION 07550

MODIFIED BITUMEN MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. (SBS) Modified Bituminous Membrane Roofing.

- B. Related Requirements:

- 1. Division 07 Section "Sheet Metal Flashing and Trim"
- 2. Division 07 Section "Preparation for Re-Roofing"
- 3. Division 07 Section "Roof Deck Insulation"

- C. Scope of Work:

- 1. This project consists of removing existing roofing and insulation, installing a new, high performance, fire retardant, SBS modified roofing membrane system. The finished system shall be complete including installation of sheet metal related items, wall panels, roof panels, gutters/downpouts and base flashings. The finished system shall be coated with non-fibered aluminum coating and result in a water-tight installation.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 REFERENCES

- 1. ASTM D 41, Specification for Asphalt Primer Used in Roofing, Damp-proofing, and Waterproofing
- 2. ASTM D 312, Specification for Asphalt Used in Roofing
- 3. ASTM D 451, Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products
- 4. ASTM D 1079, Terminology Relating to Roofing, Waterproofing, and Bituminous Materials
- 5. ASTM D 1227, Specification for Emulsified Asphalt Used as a Protective Coating for Roofing
- 6. ASTM D 1863, Specification for Mineral Aggregate Used on Built-Up Roofs
- 7. ASTM D 2178, Specification for Asphalt Glass Felt Used in Roofing and Waterproofing

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8. ASTM D 2822, Specification for Asphalt Roof Cement
9. ASTM D 2824, Specification for Aluminum-Pigmented Asphalt Roof Coating
10. ASTM D 3019, Specification for Lap Cement Used with Asphalt Roll Roofing
11. ASTM D 4601, Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing
12. ASTM D 5147, 1991 Test Method for Sampling and Testing Modified Bituminous Sheet Materials
13. ASTM E 108, Test Methods for Fire Test of Roof Coverings
14. FM, Factory Mutual
15. NRCA, National Roofing Contractors Association

1.5 PRE-APPLICATION MEETING

- A. Approximately 2 weeks before the scheduled commencement of the modified bitumen sheet roof system and associated work, meet at Project site with Installer, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in the around roofing that must precede or follow roofing work (including mechanical work if any), Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, test agencies, and governing authorities. Objectives to include:
1. Review foreseeable methods and procedures related to roofing work.
 2. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by other trades.
 3. Review structural loading limitations of deck and inspect deck for deflections and for required attachment.
 4. Review roofing systems requirements (drawings, specifications, and other contract documents).
 5. Review required submittals, both completed and yet to be completed.
 6. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 7. Review required inspection, testing, certifying, and material usage accounting procedures.
 8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).
 9. Record discussion of the pre-application meeting, including decisions and agreements reached. Furnish a copy of this record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
 10. Review notification procedures for weather or non-working days.
 11. Perform pull out test(s) with the specified fasteners, if not performed prior to the meeting, to verify the actual pull-out capacity of the fasteners, and adjust engineering calculations and fastener sizes/ layouts accordingly.

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MODIFIED BITUMEN MEMBRANE ROOFING

1.6 SUBMITTALS

- A. The following items shall be submitted in a letter issued by the Roof Manufacturer, along with the roofing submittals, prior to the Roofing Pre-Installation Conference:
1. Certification by the Roofing Manufacturer that the installer is an “Approved Applicator”, in good standing, and specifically stating that the installer is both acceptable and authorized to install the proposed roofing system(s), including all required warranties.
 2. Certification by the Roofing Manufacturer that the proposed system will comply with the manufacturer’s requirements, in order to qualify the project for all specified warranties and guarantee(s).
 3. Letter from the Manufacturer stating that a FULL-TIME employee of the Manufacturer will provide site inspections a minimum of three days a week at no additional charge to the Owner. That the Manufacturer will provide the specified 30 YR NDL Warranty to include damage caused by wind up to the design wind speed. The letter must be signed by a Corporate Officer and the Corporate Seal affixed.
- B. Product Data:
1. Manufacturer's Design Standards and other data for each item or product provided, as needed to prove compliance with specified requirements.
 2. Manufacturer's installation instructions.
- C. Shop Drawings:
1. The Contractor shall prepare Shop Drawings,
 - a. Include all typical and non-typical roof system details, including, but not limited to: details of edge conditions, joints, corners, transitions, trim, flashing, closures, penetrations, supports, anchorages, and special details related to the project.
 - b. Detail and specify locations for attachments included in the Engineering Calculations.
- D. Calculations:
1. The Roofing Manufacturer shall calculate the wind uplift pressures for each zone and exposure, from the specified Design Wind Speed.
 2. Roofing system shall be designed in accordance with IBC-2015, and the wind uplift requirements of ASCE 7-10, for the geographical location.
 3. Calculations defining wind loads on all roof areas, based on the specified Building Codes, allowable fastener loads, and required number of fasteners required to secure the roof system to the designated substructure.
 4. Engineering Calculations shall be stamped by a Professional Engineer, licensed in the State of Louisiana.

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- E. Certifications:
 - 1. Manufacturer's affidavit that materials provided for, and used in the Project contain no Asbestos.
- F. Testing Reports: Showing that the roof system been tested in accordance with specified performance testing requirements.
- G. Field Reports: As prepared by the Roofing Manufacturer's Technical Field Representative, and required to ensure conformance with the warranty and Weathertightness requirements specified herein and be distributed on a weekly basis to all parties involved.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Manufacturer's Certificates: Signed by roofing manufacturer certifying that roofing system complies with specified performance requirements, will provide inspections, and issue the specified warranty.
- C. Sample Warranties: For manufacturer's special warranties.
- D. Class of Roofing System: Certification of Class A Roofing System.

1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is authorized and approved by the roofing system manufacturer to install the manufacturer's product and that is eligible to receive manufacturer's special warranty. A minimum of five (5) years of experience is required.
- B. Manufacturer Qualifications: Roofing system manufacturer shall have a minimum of 10 years of experience in manufacturing modified bitumen roofing products in the United States and be ISO 9001 certified.
- C. Roofing products or methods to be considered must have a minimum of ten (10) years successful performance in roofing and re-roofing applications.
- D. It is the intent of this specification to provide a roof system with an ASTM E 108 Class A fire rating.
- E. Installer's Field Supervision: The roofing system installer is required to maintain a full-time Superintendent on the job site during all phases of modified bituminous sheet roofing work and at any time roofing work is in progress. Proper supervision of workmen shall be maintained. A copy of the specification shall be in the possession of the Supervisor/Foremen and on the roof at all times.

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MODIFIED BITUMEN MEMBRANE ROOFING

- F. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end and cover these materials with a canvas tarpaulin or other breathable material (not polyethylene).
- C. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- D. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- E. Do not leave unused rolled goods on the roof overnight or when roofing work is not in progress. These items must be stored as mentioned above.
- F. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.11 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Weather Condition Limitations: Do not apply roofing membrane during inclement weather or remove roofing when a 40% chance of precipitation is expected.
- C. Do not apply roofing insulation or membrane to damp deck surface.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
- E. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.

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1.12 INSPECTIONS AND TESTS

- A. The Owner's Representative, Project Manager and Roofing Manufacturer's Technical Field Representative shall at all times have access to the job site and work areas.
- B. The Contractor shall provide proper and safe facilities for such access and inspection, in accordance with applicable Federal, State, and Local laws and regulations.
- C. Inspections.
 - 1. The Owner's Representative, and/or Project Manager's Inspections:
 - a. The Owner's Representative, and/or Project Manager will perform periodic inspections throughout the duration of the project.
 - b. The Owner's Representative, and/or Project Manager shall inspect the work after the completion of each major phase of construction.
 - 2. Manufacturer's Inspections:
 - a. An Authorized Technical Field Representative of the Roofing Material Manufacturer shall make a site visit and inspection, no less than three (3) times each week, for the duration of the performance of Work, to ensure that the installation is installed in strict accordance with the Roofing Manufacturer's requirements, the Contract Documents, the Project Specifications, the approved Shop Drawings and Engineering Data, and the Roofing Manufacturer's standard details.
 - b. A written report of each site visit and inspection, consisting of photos and written documentation, shall be prepared by the Roofing Manufacturer's Authorized Technical Field Representative, and shall be forwarded over to the Owner's Representative, and/or the Project Manager on each Monday following the prior week.
 - c. The Roofing Manufacturer's Authorized Technical Field Representative shall be responsible for:
 - 1. Keeping the Owner's Representative, and/or the Project Manager informed after periodic inspections as to the progress and quality of the work observed.
 - 2. Calling to the attention of the Contractor those matters observed which are considered to be in violation of the Contract requirements.
 - 3. Reporting to the Owner's Representative, and/or the Project Manager, in writing, of any failure or refusal of the Contractor to correct unacceptable practices called to his attention.
 - 4. Confirming, after completion of the work, and based on his observations and tests, that he has observed no application procedures, or other issues in conflict with the Roofing Manufacturer's requirements, the Contract Documents, the Project Specifications, the approved Shop Drawings and Engineering Data, and/or the Roofing Manufacturer's standard details.

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- D. Any failure by the Owner's Representative, the Project Manager, or the roofing manufacturer's Technical Field Representative to observe, detect, pinpoint, or object to any defect or noncompliance with the requirements of the Roofing Manufacturer's requirements, the Contract Documents, the Project Specifications, the approved Shop Drawings and Engineering Data, and/or the Roofing Manufacturer's standard details – of work in progress or completed work – shall not relieve the Contractor of, or reduce, or in any way limit, his responsibility of full performance of the work required of him under the requirements of the Roofing Manufacturer, the Contract Documents, the Project Specifications, the approved Shop Drawings and Engineering Data, and/or the Roofing Manufacturer's standard details.
- E. The Owner's Representative, an/or the Project Manager, on behalf of the Owner, may require tests and inspections as necessary to verify the quality of the roofing materials and/or workmanship of installation.
1. The Owner shall select the Testing Laboratory and shall pay for all costs associated with initial testing.
 2. The costs for any initial tests meeting the applicable requirements shall remain the responsibility of the Owner.
 3. The costs for any initial tests not meeting the applicable requirements shall become the responsibility of the Contractor, and shall be deducted by the Owner from the Contractor's payment for the work.
 4. The costs for re-testing of any work not meeting the applicable requirements shall be the responsibility of the Contractor, and shall be deducted by the Owner from the Contractor's payment for the work.
 5. Subsequent non-compliance with applicable requirements will result in the Owner assigning a full time, Third-Party Quality Control Representative to the project. The costs for the Third-Party Quality Control Representative shall be the responsibility of the Contractor, and shall be deducted by the Owner from the Contractor's payment for the work.
 6. Laboratory tests shall be performed in accordance with the applicable ASTM standard testing procedures.

1.13 SEQUENCING AND SCHEDULING

- A. Sequence installation of modified bituminous sheet roofing with related units of work specified in other sections to ensure that roof assemblies, including roof accessories, flashing, trim, and joint sealers, are protected against damage from effects of weather, corrosion, and adjacent construction activity.
- B. All work must be fully completed on each day. Phased construction will not be accepted. Begin and apply as much roofing in one day as can be completed that same day.

1.14 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of the roofing system that fail in materials, workmanship, and aesthetics within specified warranty period. Warranty shall include damage up to the design wind speed. Warranty shall include insulation, membrane and edge metal.

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MODIFIED BITUMEN MEMBRANE ROOFING

1. Warranty Period: Thirty (30) Year, “No Dollar Limit” “Edge to Edge” Warranty from date of Substantial Completion.
- B. Contractor Warranty: Submit roofing Installer's warranty, signed by Installer, covering the Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
 1. Warranty Period: Two years from date of Substantial Completion.
- C. Annual Inspections: Membrane manufacturer will provide, free of charge, at the annual request of the Owner, annual inspections for the life of the warranty.

PART 2 - PRODUCTS

2.1 PRODUCTS

- A. Description: fully-adhered 2-ply SBS modified bitumen system suitable for application method required, cap sheet to be mineral granule surface with UL Class A and FM Global wind uplift criteria, as required to meet the wind speed requirements of IBC-2015 and ASCE 7-10 (specified herein, above).
- B. Approved manufacturers are as listed below:
 1. The Garland Company, Inc.
 2. Prior-approved equal.
- C. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.
- D. Substitutions: Submit requests per Specification Section 01350.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation or other defects in construction. Roofing and base flashings shall remain watertight.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: The roofing system shall resist the following uplift pressures based upon the following:
 1. Wind Speed: 140mph.
 2. Occupancy Category: III.
 3. Importance Factor: 1.15.
 4. Exposure Category: B.
 5. Height: 20 feet.

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MODIFIED BITUMEN MEMBRANE ROOFING

- D. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A. Identify products with appropriate markings of applicable testing agency.

2.3 ROOFING SHEET MATERIALS

- A. Base Ply: ASTM D 5147, Grade S, 110 mil minimum thickness, SBS- modified asphalt sheet (reinforced with glass fibers); smooth surfaced; heat fusible; suitable for application method specified. Torch Base by The Garland Company, Inc. or prior-approved equal.
- B. Top Ply: ASTM D 6162, Grade G, Type III, 195 mil minimum thickness; SBS-modified asphalt sheet (reinforced with glass fibers; white granule surfaced; heat fusible; suitable for application method specified. Stressply IV Plus Mineral by The Garland Company, Inc. or prior-approved equal.

2.4 BASE FLASHING SHEET MATERIALS

- A. Base Ply Sheet: ASTM D 5147, Grade S, 110 mil minimum thickness, SBS-modified asphalt sheet (reinforced with glass fibers); smooth surfaced; heat fusible; suitable for application method specified.
- B. Granule-Surfaced Flashing Sheet: ASTM D 6162, Grade G, Type III, 195 mil minimum thickness; SBS-modified asphalt sheet (reinforced with glass fibers; white granule surfaced; heat fusible; suitable for application method specified.

2.5 AUXILIARY ROOFING MATERIALS

- A. Roof Coating: Non-fibered, aluminum coating. Garlabrite by The Garland Company, In. or pre-approved equal.
- B. Asphalt Primer: ASTM D 41.
- C. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- D. Quick Setting Grout: Pitch pocket base filler as provided by prime material supplier.
- E. Mastic Sealant: Polyisobutylene, plain or modified bitumen; non-hardening, non-migrating, non-skinning, and nondrying.
- F. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel. Nails and fasteners shall be flush- driven through flat metal discs of not less than 1-inch diameter. Metal discs may be omitted when one piece composite nails or fasteners with heads not less than 1-inch diameter are used. Fasteners shall be designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

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- G. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing.
- H. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements specified in the appropriated steel deck specifications.
 - 4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Refer to Division 7 “Preparation for Reroofing”
- B. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer’s written instructions. Remove sharp projections.
- C. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 INSTALLATION, GENERAL

- A. Comply with roofing system manufacturer’s written instructions.
- B. Substrate-Joint Penetrations: Prevent adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

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3.4 ROOFING INSTALLATION, GENERAL

- A. Start installation of roofing in presence of manufacturer's technical personnel.
- B. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing modified bitumen sheet system.
- C. If applicable, where roof slope exceeds 3/4 inch per 12 inches, install roofing membrane sheets parallel with slope.
 - 1. Back nail roofing sheets to substrate according to roofing system manufacturer's written instructions.
- D. Coordinate installation of roofing system so insulation and other components of the roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed.
 - 2. Complete terminations and base flashings, and provide temporary seals to prevent water from entering completed sections of roofing system.
- E. Remove and discard temporary seals before beginning work on adjoining roofing.

3.5 MECHANICAL COORDINATION

- A. Roof top mounted equipment shall be mounted level.
 - 1. Provide curbs with sloped bases, as required to match the roof deck or structural framing slope. Where roof structure is level, provide level base curbs.
 - 2. Provide curbs with level tops, to allow equipment to be installed level.
 - 3. Provide curb types & heights as required to achieve required minimum base flashing criteria.
 - 4. Unless noted otherwise, curbs shall be fabricated from galvanized steel.
 - 5. Unless specifically noted otherwise, provide insulated curbs.
- B. Gas Equipment heights as required to achieve minimum 3" vertical clearance between roof surface and bottom of drip leg piping cap.
- C. For safety, ease of maintenance, and to minimize damage to roof system components, no equipment located within 5 feet of roof expansion joints and/or roof divider joints, vertical parapets; no equipment within 10 feet of roof edges.
- D. Roof system thermal insulation values based on HVAC system design.

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- E. Coordinate the removal or relocation of mechanical equipment with the Owner's Representative, and/or Project Manager.
- F. Where roofing work involves removal, relocation, or replacement of existing mechanical equipment, coordinate and phase work to maintain climate control on building at all times.
- G. DO NOT DISCONNECT OR REMOVE MECHANICAL UNITS WITHOUT OWNER'S PRIOR APPROVAL.

3.6 BASE-PLY SHEET INSTALLATION

- A. Heat Fused Base: Install one layer of SBS heat fused base sheet to a properly prepared insulation or roof deck board.
 - 1. Shingle in proper direction to shed water on each area of roofing.
 - 2. To a suitable substrate, lay out the roll in the course to be followed and unroll six (6) feet.
- B. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond.
 - 4. After the major portion of the roll is bonded, re-roll the first six (6) feet and bond it in a similar fashion.
 - 5. Repeat this operation with subsequent rolls with side laps of four (4) inches and end laps of eight inches.
 - 6. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.
 - 7. Extend underlayment two (2) inches beyond top edges of cants at wall and projection bases. Install base flashing ply to all perimeter and projections details.

3.7 MISCELLANEOUS ROOFING COMPONENTS

- A. Drip Edge:
 - 1. Inspect the wood nailer to assure proper attachment and configuration.
 - 2. Run base ply over to the outside of blocking.
 - 3. Prime metal edge at a rate of one hundred (100) square feet per gallon and allow surface to dry.
 - 4. Mechanically attach metal flashing at 3" c/c staggered.
 - 5. Strip in flange with base flashing ply covering entire flange in bitumen with six (6) inches on to the field of roof. Assure ply laps do not coincide with metal laps.
 - 6. Install a field ply of modified mineral cap ply over the base flashing ply.
- B. Curb Type Penetrations:
 - 1. Minimum curb height is eight (8) inches. Prime vertical at a rate of 100 square feet per gallon and allow for drying
 - 2. Set cant in insulation adhesive. Run base ply over cant a minimum of two (2) inches.
 - 3. Install base flashing ply covering curb set in bitumen with six (6) inches on to field of the roof.

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4. Install a top ply of modified flashing over the base flashing ply, nine (9) inches on to the field of the roof. Attach top of membrane to top of curb and nail at eight (8) inches c/c. Heat fuse six (6) inch strip of modified cap sheet at all vertical seams prior to coating.
5. Install pre-manufactured cover. Fasten sides at 24 inches c/c with fasteners and neoprene washers. Furnish all joint cover laps with butyl tape between metal covers.
6. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

C. Plumbing Vent:

1. Minimum vent height shall be eight (8) inches.
2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.
3. Prime flange of new sleeve. Install properly sized sleeves set in ¼ inch bed of roof cement.
4. Install base flashing ply by torch.
5. Install membrane by torch.
6. Caulk the intersection of the membrane with elastomeric sealant.
7. Turn sleeve a minimum of one (1) inch down inside of stack.

D. Flange Type Vents:

1. New vents shall match existing size and profile.
2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.
3. Prime flange of new vent and set in ¼ inch bed of elastomeric roof cement.
4. Install base flashing ply by torch.
5. Install membrane by torch.
6. Caulk the intersection of the membrane with elastomeric sealant.

E. Flashing At Wall:

1. Minimum flashing height is 8". Install insulation and roof deck board as detailed.
2. Set cant in bitumen. Run all roofing plies over cant a minimum of 2".
3. Prepare all walls and penetrations to be flashed with asphalt primer at the rate of ½ gallon per square.
4. Heat fuse bottom ply of flashing membrane.
5. The heat fused flashing membrane will be adhered to an underlying base ply of glass felt bonded in asphalt when torching near wood nailers or combustible surfaces.
6. After the laps have been tested, and a complete positive bond has been achieved, the applicator shall heat the seam edge and trowel along the seam edge. Troweling shall continue until a sloped, beveled edge has been produced.
7. Heat fuse top ply of flashing membrane.
8. After the laps have been tested, and a complete positive bond has been achieved, the applicator shall heat the seam edge and trowel along the seam edge. Troweling shall continue until a sloped, beveled edge has been produced.
9. Install a termination bar at the top of all base flashing. The termination bar shall be mechanically attached every 8" on center. Apply a three course application of mastic and reinforcing mesh over the term bar and onto the wall.

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10. All vertical laps in base flashing system shall receive a six (6) inch wide reinforcement utilizing the specified cap sheet.

3.8 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Heat Fused or Torch Applied:
 1. Over the SBS torch base sheet underlayment, lay out the roll in the course to be followed and unroll six (6) feet. Seams for the top layer of modified membrane will be staggered over the SBS torch base sheet seams.
 2. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond.
 3. After the major portion of the roll is bonded, re-roll the first six (6) feet and bond it in a similar fashion.
 4. Repeat this operation with subsequent rolls with side laps of four (4) inches and end laps of eight (8) inches.
 5. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.
- B. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 1. Repair tears and voids in laps and lapped seams not completely sealed.
 2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing sheets so side and end laps shed water.

3.9 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 1. Prime substrates with asphalt primer if required by roofing system manufacturer.
 2. Flashing-Sheet Application: Torch apply flashing sheet to substrate.
- B. Extend base flashing up walls or parapets a minimum of 8 inches above roofing membrane and 6 inches onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
 1. Install a termination bar at the top of all base flashing. The termination bar shall be mechanically attached every 8" on center. Apply a three course application of mastic and reinforcing mesh over the term bar and onto the wall.
 2. All vertical laps in base flashing system shall receive a 6 inch wide heat fused reinforcing ply of mineral surfaced base flashing.
- D. Install roofing cap-sheet stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.

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3.10 SURFACING

A. Bleed Out:

1. Immediately broadcast new clean minerals into the bleed out of the modified roof membrane.
2. The overall appearance of the finished roofing application is a standard requirement for this project. The Roofing Contractor shall make necessary preparations, utilize recommended application techniques (i.e. to immediately apply the specified granules into the bleed out) to ensure that the finished application is acceptable to the Owner. The Architect and Owner will be the sole judge as to whether the finished surface is acceptable.

B. Roof Coating:

1. After a final inspection has been performed and all items have been corrected on the punch list, Contractor shall apply specified coating.
2. Apply two applications of the specified coating at rate of $\frac{3}{4}$ gallons per square per coat. First pass shall be North and South. Second pass shall be East and West.

3.11 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

1. Notify Owner 48 hours in advance of date and time of inspection.
2. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party.
3. The Owner reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided for the Owner by the Roofing Material Manufacturer at a negotiated price.
4. If water and/or moisture is discovered beneath the cap and/or base sheets as a result of improper installation, all membranes must be removed and replaced with new at no additional cost to the Owner. This includes any damaged roof deck board and/or insulation boards.
 - a. If the deck system has sustained damage as a result of water and/or moisture as a result of improper installation. The Contractor must replace and/or make repairs to the deck at no additional cost to the Owner.
 - b. Conduct proper sequencing to eliminate water and moisture prior to reinstallation.
5. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense and reimburse the Owner for the cost of the scan.
6. Replace deteriorated or defective work found during inspections to a condition free of damage and deterioration at time of Substantial Completion.

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7. The SBS roofing membranes (including the cap sheet) must be free from, but not limited to, ripples, fish mouths, blisters, air pockets, bubbles, etc. The surface must be smooth, flat, and aesthetically pleasing for a finished appearance. The cap sheet surface must be free from, but not limited to, adhesives, mastics, smears, foot tracks of substances, and any other substance that will detract from and cause an unpleasing and unacceptable aesthetic appearance.
 - a. The SBS roofing membrane system will not be accepted if these type conditions are experienced.
8. The Contractor is to notify the Owner upon completion of corrections.
9. Following the final inspection, acceptance will be made in writing by the material manufacturer.

3.12 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

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FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes, but not limited to:
 - 1. Formed low-slope roof flashing, drip edge, gutters and downspouts.
 - 2. Formed coping, counter flashing and trim.
 - 3. Formed wall panels and trim.

1.3 RELATED SECTIONS

- 1. Division 07 Section "Roof and Deck Insulation."
- 2. Division 07 Section "Preparation for Re-Roofing."
- 3. Division 07 Section "SBS Modified Bitumen Roof Membrane"

1.4 REFERENCES

- 1. ASTM A-446 Specification for Steel Sheet.
- 2. ASTM B-209 Specification for Aluminum Sheet.
- 3. ASTM B-221 Specification for Aluminum Extruded Shape.
- 4. FS QQ-L-201 Specification for Lead Sheet.
- 5. ASTM A792 Steel Sheet, Aluminum-Zinc Alloy-Coated, by the Hot-Dip Process.
- 6. ASTM B32 Solder Metal.
- 7. ASTM B209 Aluminum and Alloy Sheet and Plate.
- 8. ASTM B486 Paste Solder.
- 9. ASTM D226 Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- 10. ASTM D486 Asphalt Roof Cement, Asbestos-free.
- 11. FS O-F-50 Flux, Soldering, Paste and Liquid.
- 12. WH Warnock Hersey International, Inc. Middleton, WI.
- 13. NRCA National Roofing Contractors Association - Roofing Manual.
- 14. SMACNA Architectural Sheet Metal Manual.

1.5 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leak-proof, secure, and noncorrosive installation.

1.6 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.
 - 1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

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2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and items of other construction that affect sheet metal flashing and trim.
3. Review requirements for insurance and certificates if applicable.
4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.7 ACTION SUBMITTALS

- A. Product Data: For each type of product, including hoods, vents, edge metal, fascia, and all other sheet metal fabrications.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
 2. Indicate type, gauge, and finish of metal.
- B. Shop drawings: For sheet metal flashing and trim, indicate material profiles, metal type, metal gauge, metal finish, dimensions, jointing pattern, jointing details, fastening methods, flashing, terminations, and installation details.
- C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.
- D. Samples for Verification: For each type of exposed finish.
 1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.

1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.
- B. Product Certificates: For each type of coping and roof edge flashing that is ANSI/SPRI ES-1 tested.
- C. Roofing System Manufacturer's Certification: Metal edge systems and other miscellaneous metals furnished are acceptable to roofing manufacturer as a component of roofing system and are included in the manufacturer's roof system warranty.

1.9 QUALITY ASSURANCE

- A. Reference Standards:
 1. Comply with details and recommendations of SMACNA Architectural Sheet Metal Manual for workmanship, methods of joining, anchorage, provisions for expansion, etc. Conform to dimensions and profiles shown unless more stringent requirements are indicated.
 2. ASCE 7-10.
 3. IBC 2015.

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- B. In Field Mockups:
1. The Contractor shall provide and install 5 feet long sample mockups for each different condition as follows: edge metal, fascia, coping, and gutter. The mockups shall be fabricated from the same material scheduled and specified to be used throughout. The Contractor shall allow for any dimensional, shape, or profile adjustment to the satisfaction and approval of the Architect.
- C. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance a minimum of 5 years.
1. For roof edge flashings that are fabricated in accordance with ANSI/SPRI ES-1 requirements, shop shall be listed as able to fabricate required details as tested and approved.

1.10 CONTRACTOR'S WARRANTY

- A. The Contractor shall provide the Owner with a notarized written warranty assuring that all sheet metal work including caulking and fasteners to be watertight and secure for a period of two years from the date of final acceptance of the building. Warranty shall include all materials and workmanship required to repair any leaks that develop, and make good any damage to other work or equipment caused by such leaks or the repairs thereof.

1.11 SBS ROOFING SYSTEM MANUFACTURER'S OBSERVATIONS

- A. Refer to Specification "SBS Modified Bitumen Membrane Roofing" for observation specifics and requirements.

1.12 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 30 years from date of Substantial Completion.
 3. This warranty shall be included with the SBS roofing manufacturer's system warranty.
- B. Edge Metal Leak-Tight Warranty: Edge metal fabricator and installer agrees to make repairs or replace the edge metal due to failure within the specified warranty period.
1. Leak-Tight Warranty Period: 30 years from date of Substantial Completion.

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2. This warranty shall be included with the SBS roofing system manufacturer's system warranty.

1.13 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.
- B. Stack performed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials which may cause discoloration or staining.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. ANSI/SPRI ES-1 Wind Design Standard: Fabricate and install roof edge flashings that are fabricated according to ANSI/SPRI ES-1 standards and capable of resisting the following design pressures:
 1. Wind Pressure: 140 mph.
 2. Occupancy Category: III.
 3. Importance Factor: 1.15.
 4. Exposure Category: B.
 5. Building Height: 20 feet.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.
- E. Sheet metal shall be supplied by the Prime Roofing Material Manufacturer, and shall be included in the Specified Warranties.

2.2 MATERIALS AND GAUGES

- A. Stainless Steel Sheet: ASTM A 67; commercial quality, 2D annealed finish, 304 stainless steel, 24 gauge.
- B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality with manufacturer's standard clear acrylic coating both sides.

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- C. Pre-painted, Metallic-Coated Steel Sheet: Steel sheet metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.
 - 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
 - 2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality.
 - 3. Exposed Finishes: Apply the following coil coating:
 - a. Factory Prime Coating: Factory-applied, baked-on epoxy primer coat.
 - b. Two-Coat Fluoropolymer Coating: Thermocured system containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2604, except as modified for below:
 - 1) Humidity Resistance: 2000 hours
 - 2) Salt Spray Resistance: 1000 hours.
 - 3) Color: As selected from the manufacturer's full range of colors.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Fasteners: Self tapping screws, bolts, nuts, self locking rivets and bolts, end welded studs, Wood screws, annular threaded nails, self-tapping screws, self- locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of factory applied coating.
 - 1. All Fasteners: All fasteners shall match the adjacent panel or trim finish and color, as specified and selected.
- C. Elastomeric Sealant: ASTM C 920, elastomeric non-skinning polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.
- E. Zinc Flashings (Plumbing Vents and Roof Drain Pans): ASTM B69-98a, 99.995% pure zinc. Thickness: 0.03"

2.5 NAILS, RIVETS, AND FASTENERS

- A. Nails: Copper, Stainless Steel or Galvanized depending on application.
- B. Rivets: Copper, Aluminum, or Stainless Steel depending on application.
- C. Exposed Fasteners and Washers: Stainless Steel Screws with covered neoprene gaskets.
- D. Unexposed Fasteners and Washers: Stainless steel.

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2.6 RELATED MATERIALS

- A. Flux: Raw Muriatic Acid killed with Zinc Chloride.
- B. Solder: Conform to current ASTM B-12. 50% tin and 50% lead.
- C. Burning Rod for Lead: Same composition as lead sheet.
- D. Joint Sealant: Polyurethane, see Joint Sealant Section.
- E. Underlayment: Vinyl Membrane.

2.7 ROOF AND WALL SHEET METAL FABRICATIONS

- A. Metal Edge, Gutters, Downspouts, Copings: Fabricate from the following material:
 - 1. Pre-painted, Metallic-Coated Steel: **22 gauge**.
- B. Vents, Pitch Pans, Pipe Hoods
 - 1. 304 SS all joints soldered. **24 gauge**.
- C. Continuous Cleat:
 - 1. Galvanized **20 gauge**.
- D. Gutter Supports:
 - 1. Gutter Brackets - **1/8”(thick)** x 1” hot dipped galvanized flat stock for gutter brackets shall extend up the entire back height of the gutter and be attached with a minimum of two 8”x2” wood grip screws. The brackets will be installed in 36” centers and match profile of new gutter. Brackets shall be wrapped with same prefinished metal as gutters.
 - 2. Gutter Spacers: ASTM A67 ; commercial quality, 2D annealed finish, **22 ga.**, 304 stainless steel, 16 gauge x 1” wide. Spaced at 36” on centers alternating between gutter and brackets.
- E. Wall Panels:
 - 1. Pre-painted, Metallic-Coated Steel: **22 gauge**. Rmer Wall Pan by The Garland Company, Inc. or pre-approved equal.
 - 2. Concealed: **22 gauge** Galvanized.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify all existing work is complete to a point where this installation may commence.
- B. In the event of discrepancy, notify Architect. Do not proceed until discrepancies have been resolved.

SECTION 07600

FLASHING AND SHEET METAL

- C. Sheet metal items scheduled for replacement shall be field measured prior to fabrication. Sizes shall match existing.
- D. Field measure site conditions prior to fabricating work.

3.2 FABRICATION

- A. Shop fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of NRCA, SMACNA, and other industry practices.
- B. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of work.
- C. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

3.3 FLANGE TYPE FLASHING INSTALLATION

- A. Prime both sides of lead flashing. Set all leads in a bed of asphalt mastic. Strip in with one ply of the SBS base ply.
- B. At pipe vents, turn lead down into pipe opening and crimp.

3.4 DRIP EDGE, GUTTER AND DOWNSPOUTS

- A. See plans for installation procedures.

3.5 WALL PANELS

- A. See plans for installation procedures.

3.6 CLEANING

- B. Clean exposed metal surface removing substances which might cause corrosion of metal or deterioration of finish.
- C. Remove protective plastic sheeting from metal surfaces.

END OF SECTION



South Slidell Library Roof Inspection Report

Prepared By
Scott Schneidewind

October 09, 2020

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Facility Summary

Client: St. Tammany Parish Government

Facility: South Slidell Library

Facility Data

Address 1	3901 Pontchartrain Blvd
City	Slidell
State	-
ZIP	70458
Type of Facility	Municipal
Square Footage	6,400
Contact Person	Bruce Crouch

Notes

This location was recently purchased by St. Tammany Parish. The roof appears to be original to the building. It was not maintained properly and now has deteriorated to a point where replacement is the only option.

Asset Information

Name	Date Installed	Square Footage	Roof Access
South Slidell Library	Unknown	6,400	Ladder Needed



Construction Details

Client: St. Tammany Parish Government

Facility: South Slidell Library

Roof Section: South Slidell Library



Information

Year Installed	Unknown	Square Footage	6,400
Slope Dimension	1/4" per 12"	Eave Height	15'
Roof Access	Ladder Needed	System Type	Built Up Roof (BUR)

Assembly

Roof #	Layer Type	Description	Attachment	R-Value	Thickness
1	Deck	Metal	Unknown	-	-
1	Insulation	Perlite	Mechanically attached	-	1.5"
1	Membrane	BUR - 4 ply	Hot asphalt	-	-

Details

Perimeter Detail	Parapet Wall
Flashing Material	BUR
Drain System	Gutter System
Parapet Wall	Concrete Block, Masonry
Coping Cap	Metal

Notes

A ladder is needed to reach the attached partial ladder at the rear of the building.





Inspection Report

Client: St. Tammany Parish Government

Facility: South Slidell Library

Report Date: 08/02/2019

Roof Section: South Slidell Library

Inspection Information

Inspection Date	08/02/2019	Core Data	Yes
Inspection Type	Core Analysis	Leakage	No
Deck Conditions	Good		

Flashing Conditions

Perimeter	Poor	Wall	Fair
Projections	Poor	Counterflashing	Poor

Miscellaneous Details

Reglets	N/A	Debris	No
Control Expansion Joints	N/A	Ponding Water	Minor
Parapet Wall	Fair	Coping Joints	Good

Perimeter

Rating	Poor		
Condition	<p>The perimeter of the roof area consists of 75% metal wall panels and 25% split face cinder blocks. When the new roof is installed, I recommend extending the wall panels all the way to the gutter. Split face block is notoriously porous and needs constant maintenance.</p> <p>The new coping will also need to be replaced. A continuous clip was not installed and the metal cap is most likely going to blow off during a high wind event.</p>		

Field

Rating	Poor		
Condition	<p>The field of the roof is POOR. As explained earlier, the roof was never kept protected from the UV rays. This is unfortunate because he could have lasted 10-15 more years if maintained properly. The top layer of waterproofing has worn away from the felts and now the fiberglass strands are exposed. This condition prevents us from recommending a restoration system.</p>		

Penetrations

Rating	Poor
Condition	The penetrations consist mostly of galvanized vents and pitch pans. These would all be replaced when the new roof is installed.

Drainage

Rating	Good
Condition	No significant signs of ponding water. Gutters and downspouts should be replaced when as part of the reroofing project.

Overall

Rating	Poor
Condition	The overall condition of the roof assembly is POOR. The main reason for the poor condition is lack of preventative and corrective maintenance over the life of the roof. These types of roof need to be surfaced to prevent deterioration from UV light. Over time, the sun has dried out the top of the roof plies and now the fiberglass felt is showing.



Photo 1

Overview of roof area.



Photo 2

Overview of roof area. The grey areas are the fiberglass fibers showing through the felts.



Photo 3

Overview of roof area. Abandoned satellites should be removed from the roof.



Photo 4

Overview of roof area.



Photo 5

Overview of roof area.



Photo 6

Overview of roof area.

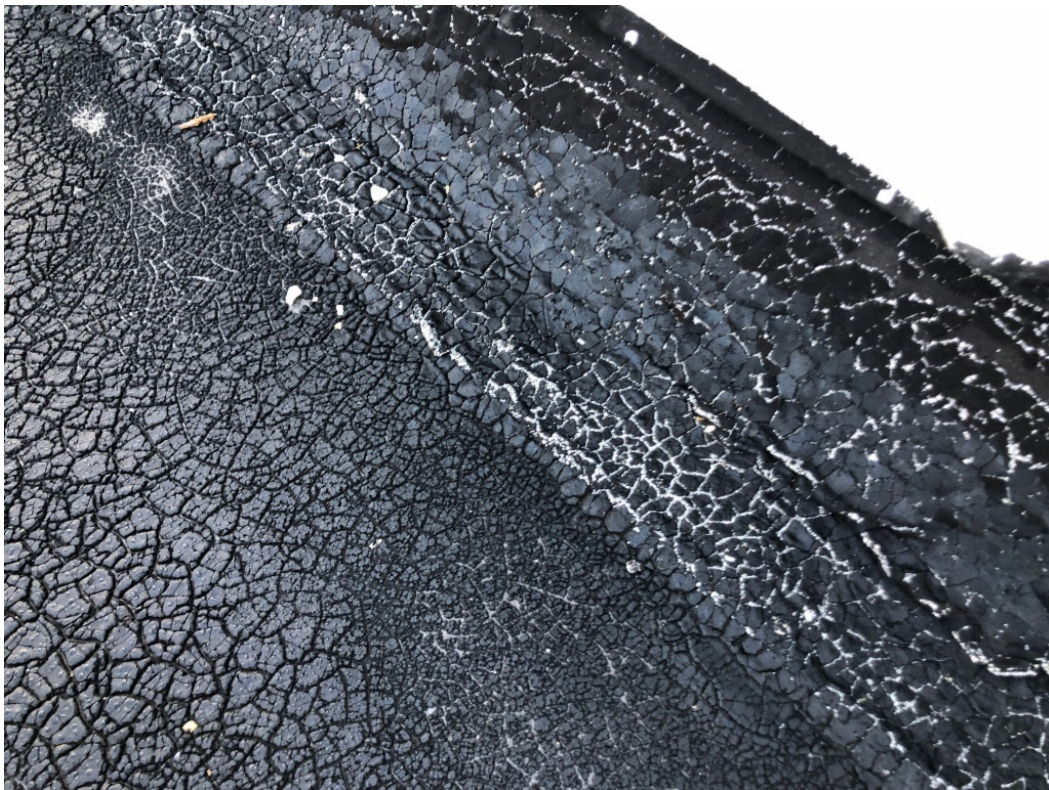


Photo 7

Asphalt has dried out due to UV deterioration. This condition is known as "alligating".



Photo 8

Close up of the fibers of the fiberglass felts. The top waterproofing layer of asphalt has deteriorated.



Photo 9

Another photo of the fibers. This condition prevents us from recommending a restoration option.



Photo 10

Metal wall panel should be extended to the roof edge.



Photo 11

Overview of previous repairs made around the HVAC.



Photo 12

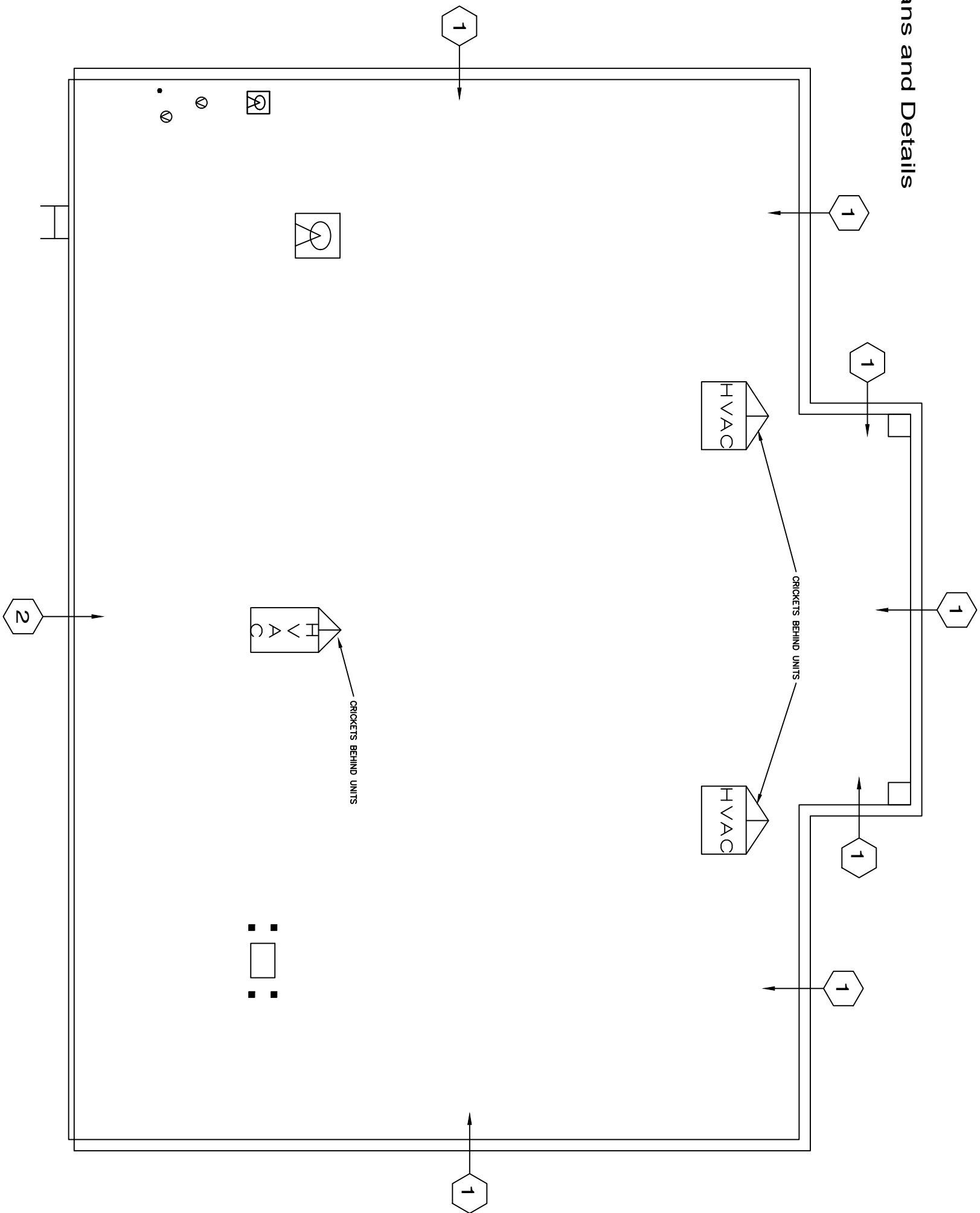
Verification of the existing roof configuration. Metal deck, 1.5" perlite insulation and 4 plies of fiberglass felts set in hot asphalt.



Photo 13

Close up showing the metal deck.

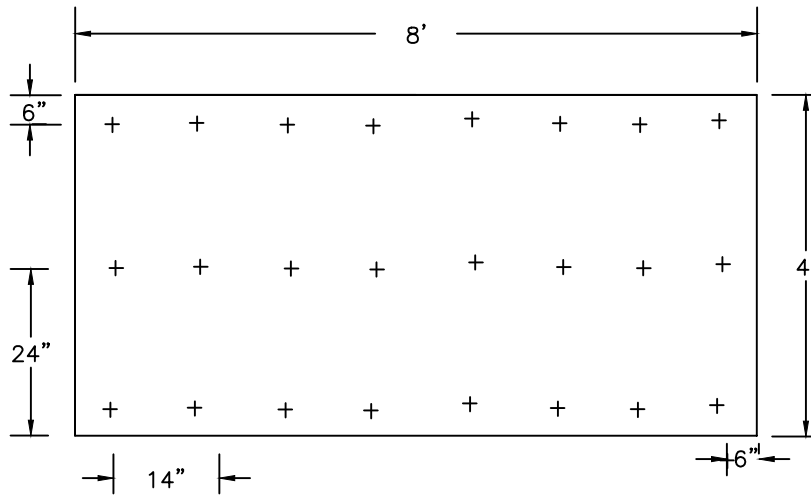
Section 10- Plans and Details



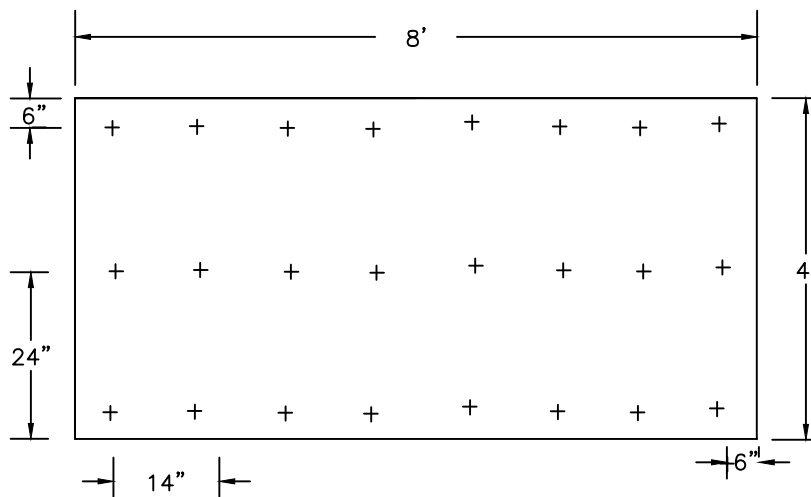
NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS.
2. CONTRACTOR SHALL FIELD VERIFY NUMBER AND TYPE OF PENETRATIONS.
3. CONTRACTOR SHALL FIELD VERIFY DECK TYPES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MECHANICAL AND ELECTRICAL WORK REQUIRED TO INSTALL SPECIFIED ROOF SYSTEM.
5. ALL CURBS TO BE A MINIMUM 8" ABOVE ROOF SURFACE.
6. GAS LINES, DRAIN LINES AND OTHER LINES NOT SHOWN FOR CLARITY.

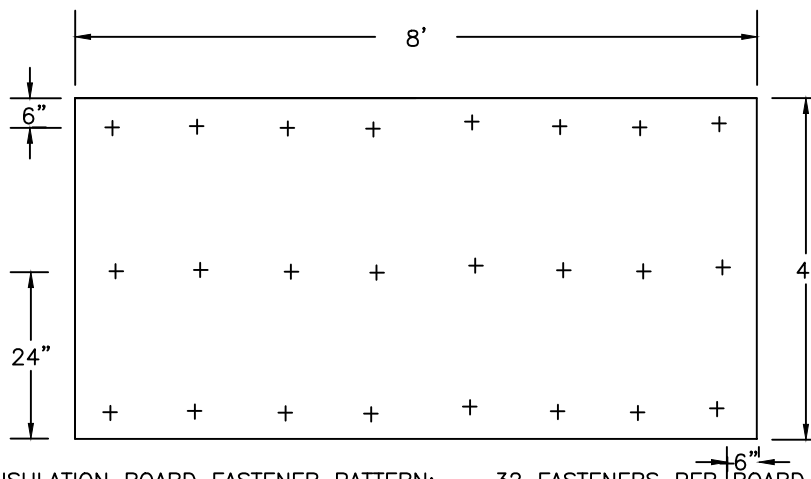
ST. TAMMANY PARISH LIBRARY
 SOUTH SLIDELL BRANCH



ZONE 1 INSULATION BOARD FASTENER PATTERN: 16 FASTENERS PER BOARD

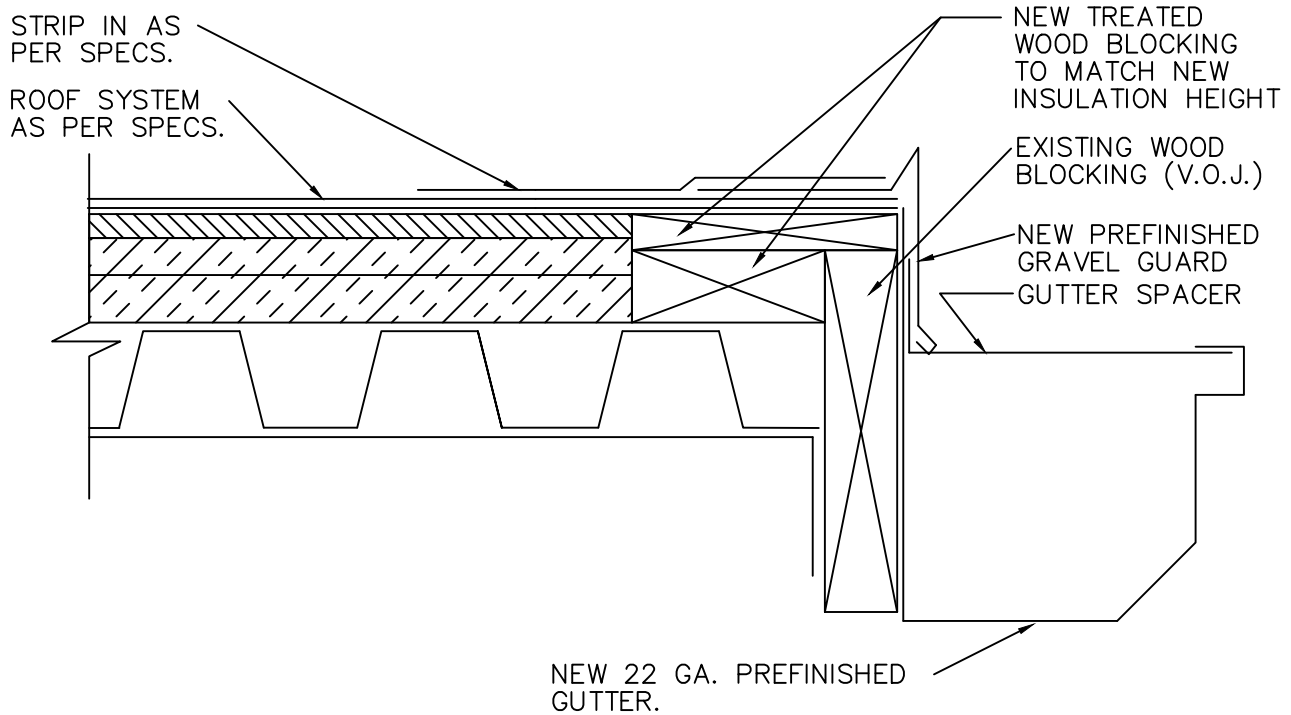


ZONE 2 INSULATION BOARD FASTENER PATTERN: 24 FASTENERS PER BOARD 8' Perimeter



ZONE 3 INSULATION BOARD FASTENER PATTERN: 32 FASTENERS PER BOARD 8' X 8' Corners

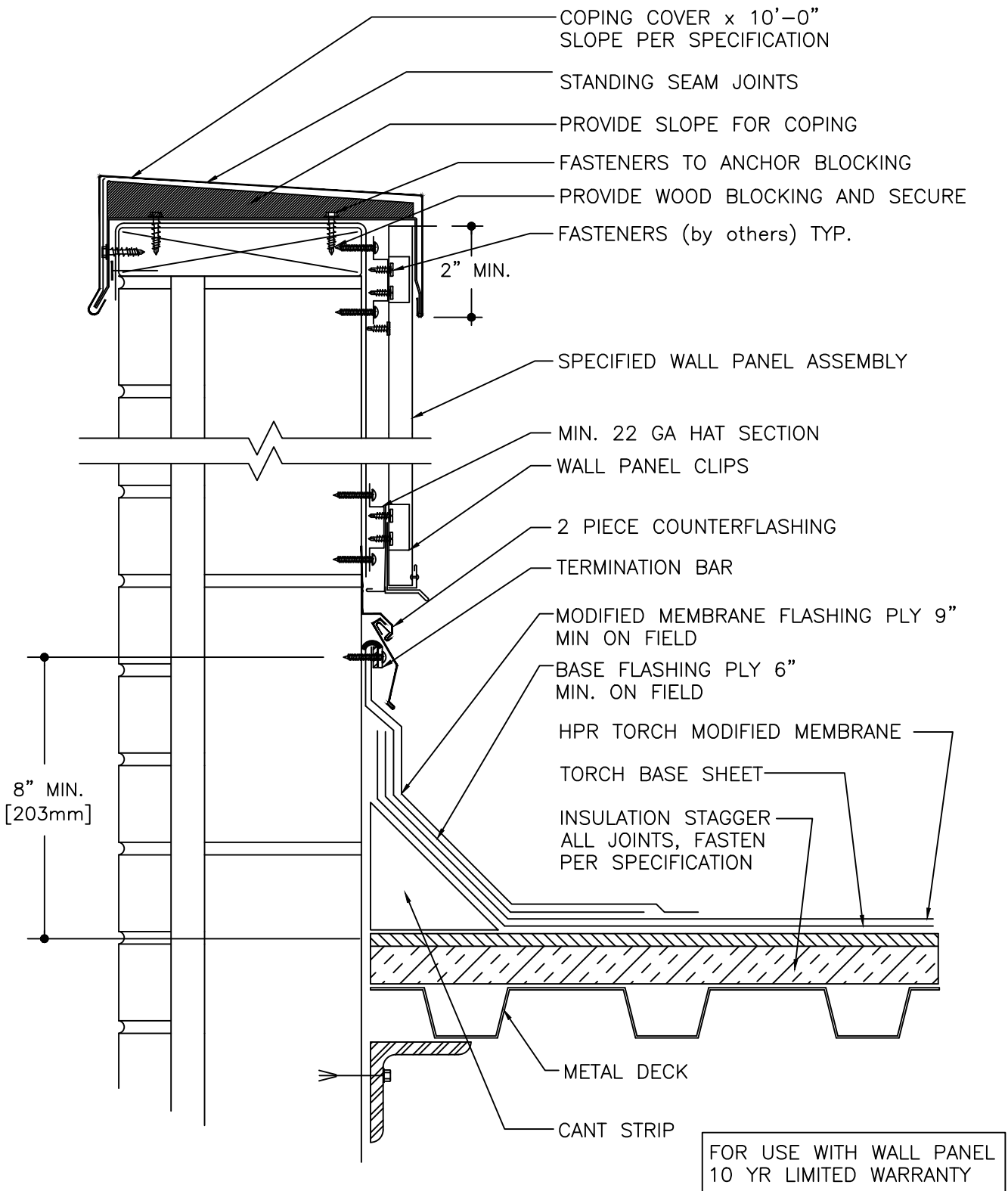
FASTENING PATTERN @ METAL DECK



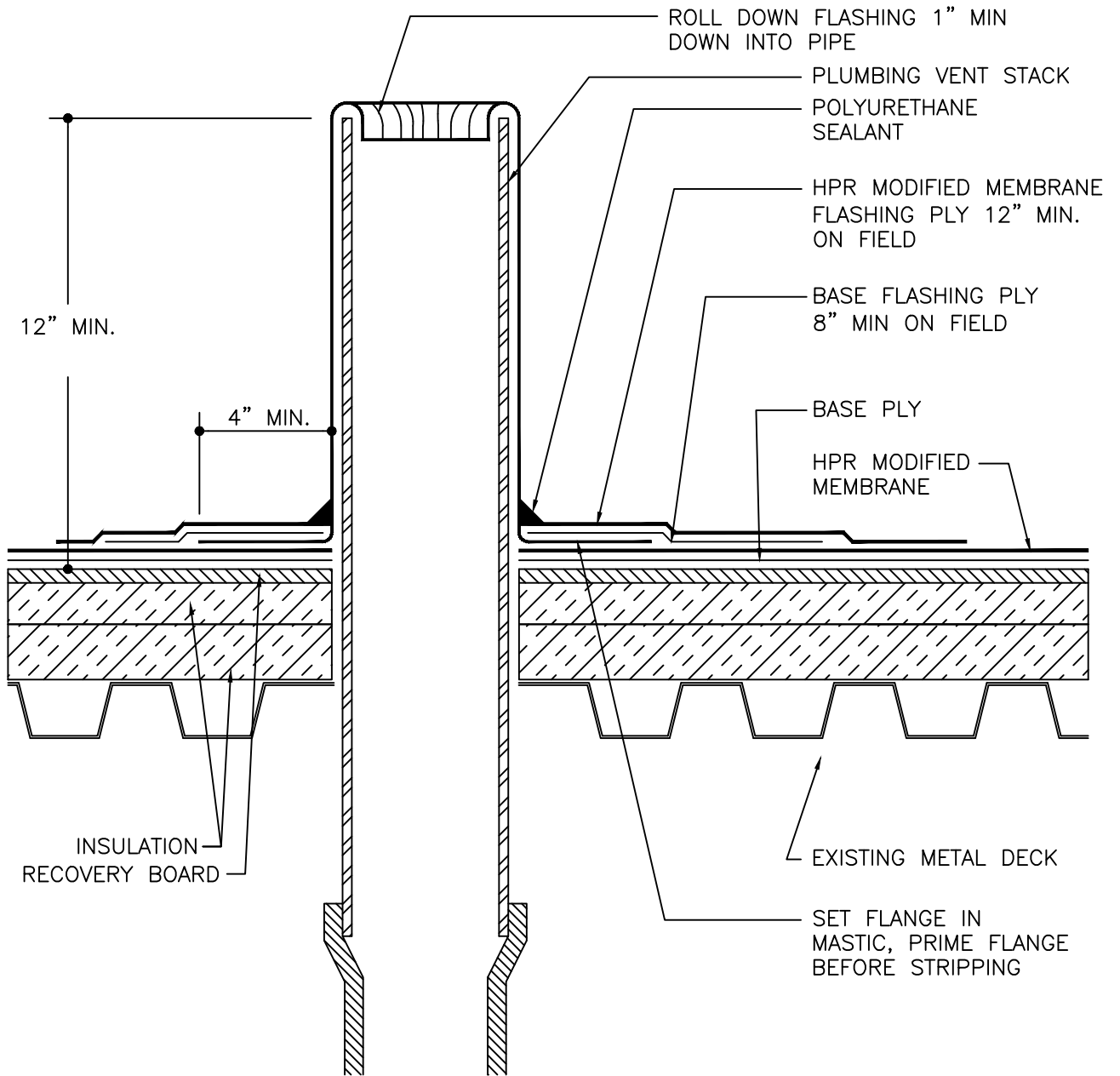
NOTES:

- 1) CONTRACTOR SHALL DETERMINE PROPER GUTTER AND DOWNSPOUT SIZING ACCORDING TO THE "ROOF DRAINAGE SYSTEMS" SECTION OF THE SMACNA ARCHITECTURAL SHEET METAL MANUAL.
- 2) CONTRACTOR TO FABRICATE AND INSTALL NEW STAINLESS STEEL WIRE STRAINER BASKETS AT EACH DOWNSPOUT OPENING. MESH SIZE SHALL BE 1" X 1" AND BASKET HEIGHT SHALL BE FLUSH WITH THE FRONT OF THE GUTTER.

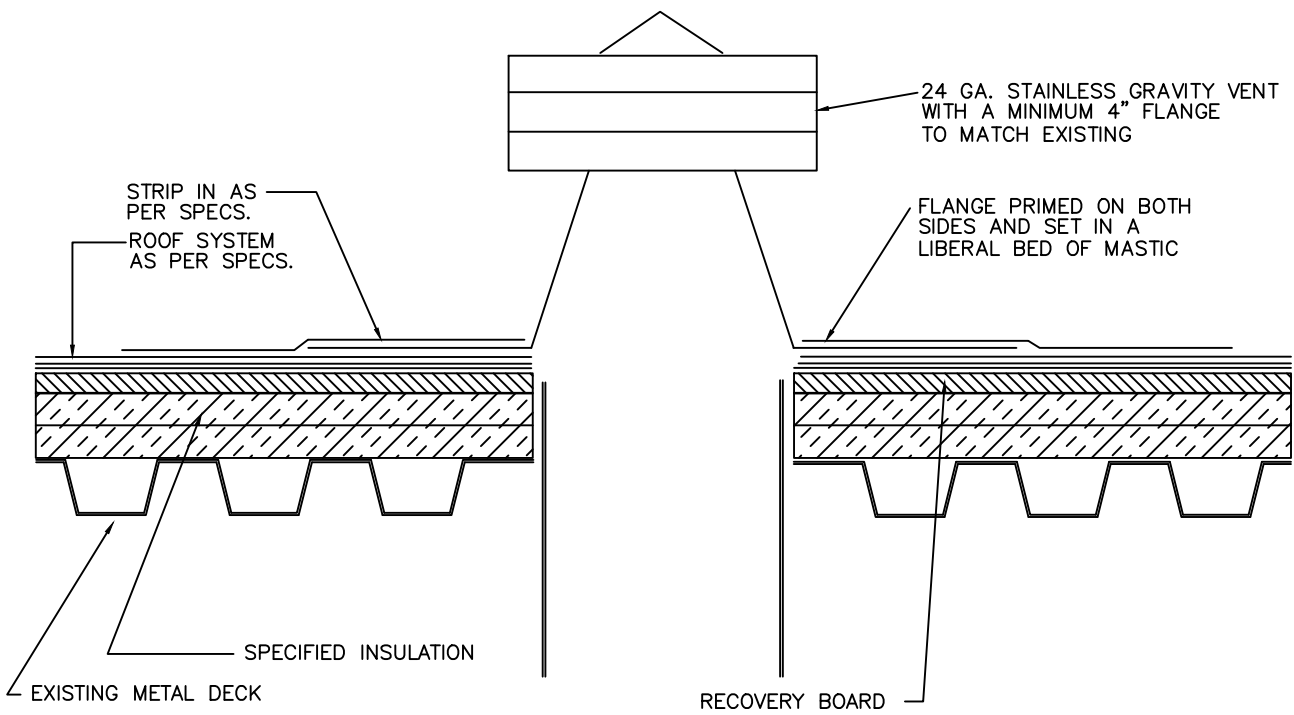
② GUTTER DETAIL



① PARAPET WALL DETAIL



TYP. SOIL STACK



TYP. GRAVITY VENT