

INVITATION TO BID
Roof Restoration
& Shingle Replacement at
Children's Friend
621 Dexter Street
Central Falls, RI



and

WHITECAP ENGINEERING, LLC
Engineering Design & Construction Management Services

September 16, 2026

CHILDREN'S FRIEND

153 Summer Street

Providence, RI 02903

www.childrensfriendri.org

T. 401-276-4300

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Section I:

Outline Scope of Work

Children's Friend ("Owner") is requesting bid proposals from qualified roofing contractors for the **621 Dexter Street Roof Restoration Project**, located at 621 Dexter Street, Central Falls, RI 02863.

The Work shall be performed in accordance with the Project Manual, Specifications, Drawings, and Scope of Work prepared by Whitecap Engineering, LLC and its consultants, which are incorporated into and made part of this Invitation to Bid.

The Base Bid includes removal and replacement of designated shingle roofing, gutters and downspouts; restoration of the existing flat EPDM roof system; removal and legal disposal of designated insulation, membrane, pitch pockets, blocking, flashings and related materials; installation of new insulation and the AlphaGuard Roof Restoration System; temporary disconnection, protection and reinstallation of designated roof-mounted components; compliance with applicable requirements related to asbestos-containing materials (ACM), including required work practices and handling procedures for materials containing less than 1% asbestos, as identified by testing; and procurement of the required manufacturer's long-term roofing warranty and inspection program.

ACM Testing: Testing of materials at the project site identified less than 1% chrysotile asbestos in the seam sealant on the flat roof. All other materials tested had no asbestos detected. The Contractor shall comply with all applicable requirements, including OSHA requirements and applicable work practices for materials containing less than 1% asbestos.

Please see ACM sampling report provided by ECM as part of this Project Manual.

The Contractor shall furnish all labor, materials, equipment, supervision, permits, disposal, coordination, and other services necessary for complete performance of the Work in accordance with the Contract Documents.

The project also includes the following Bid Alternates:

Add Alternate #1: Removal and replacement of wet insulation; installation of new tapered insulation, ½-inch gypsum coverboard, and single-ply PVC-KEE membrane.

Add Alternate #2: Removal and replacement of wet insulation; installation of new tapered insulation, ½-inch gypsum coverboard, 2-ply Powerply base layer, and Tremco Powerply Endure 100 FR modified bitumen granulated cap sheet.

The Contractor's bid shall include:

- All labor, materials, equipment, supervision, disposal, coordination, and other costs necessary to complete the Work identified in the final Scope of Work, General Requirements, Technical Specifications, Drawings, and other Construction Documents.
- All applicable permits, fees, inspections, testing, and other regulatory requirements identified in the Construction Documents.
- All costs associated with required post-installation inspections and any required final approvals, in accordance with the requirements of the applicable authorities and the Construction Documents.

Certain related work will be performed by other contractors or trades contracted directly by Children's Friend, as identified in the Contract Documents. The Contractor shall coordinate its work with such

contractors and trades as necessary to complete the Project. Bidders shall carefully review the Contract Documents and shall not include in their Base Bid work specifically identified as being performed by others.

Funding

This project is partially funded through federal Head Start funds, with the remaining project costs supported by private funding. Due to the mixed funding sources, bidders are required to submit **two separate pricing scenarios** for the Work:

1. **Prevailing Wage Pricing:** Pricing based on all applicable Rhode Island prevailing wage requirements, including applicable base wages, fringe benefits, and related labor costs.
2. **Non-Prevailing Wage Pricing:** Pricing based on the Contractor's applicable non-prevailing wage labor rates.

Bidders shall provide complete pricing for **both scenarios** for the Base Bid and each applicable Bid Alternate. The two pricing scenarios shall be clearly identified and separately stated on the Bid Pricing Sheet.

The applicable Rhode Island prevailing wage rates shall be those included in the prevailing wage schedule incorporated into the Bid Documents. Bidders are responsible for reviewing the applicable wage classifications and including all required wages and fringe benefits in their prevailing wage pricing.

Section 2:

Mandatory Pre-Bid Meeting

A mandatory pre-bid conference will be held at the project site, Children's Friend, 621 Dexter Street, Central Falls, RI, 02863 on **Wednesday, September 23, 2026, at 9:30 a.m.** Prospective bidders are required to attend the conference to view the project site and clarify bidding requirements and project details.

A bid submitted by a contractor that did not attend the mandatory pre-bid conference will be considered non-responsive and will be disqualified.

Bid Questions

Questions pertaining to the Scope of Work, Construction Documents, and bidding requirements shall be submitted to Shelli Schofield at bids@cfsri.org no later than **Monday, September 28, 2026, at 4:00 p.m.** Questions received after the deadline will not be addressed. Responses to questions received by the deadline will be distributed by email to all known bidders.

Children's Friend is an Affirmative Action/Equal Opportunity Employer

Bid Due Date

Bids shall be submitted by email as a PDF attachment with the subject line "Dexter Roof Restoration Project" to Shelli Schofield at bids@cfsri.org no later than **Tuesday, October 13, 2026, at 4:00 p.m.** Bids received after the stated deadline will not be accepted.

Schedule

The Owner prefers that the Work be completed during the Fall 2026 construction season, if reasonably feasible. If weather or other conditions prevent completion during Fall 2026, the Owner may authorize the Work to be deferred to Spring 2027. The Contractor shall coordinate the project schedule with the Owner in advance of commencing the Work. If the Work is deferred to Spring 2027, all Work must be fully completed and inspected, and all related invoices must be dated no later than April 30, 2027. This date is a firm funding deadline.

Bidders should indicate their anticipated project schedule and estimated duration for completion in their bid, including whether they anticipate completing the Work during Fall 2026 or, if necessary, during Spring 2027.

Bid Document Availability

Bid documents will be available electronically by contacting Shelli Schofield at bids@cfsri.org. Copies will also be made available to prospective bidders at the mandatory pre-bid conference.

Section 3:

Vendor Requirements and Required Bid Documents

Tax Identification Number

Prospective bidders must provide their Federal Tax Identification Number (TIN).

Contractor's License

Prospective bidder must provide a copy of their current and valid Rhode Island Contractor's License with its proposal.

Prevailing Wage and Non-Prevailing Wage Pricing

Bidders shall provide both Prevailing Wage and Non-Prevailing Wage pricing as required under Section I – Funding. All pricing shall be clearly identified and separately stated on the Bid Pricing Sheet for the Base Bid and each applicable Bid Alternative.

Bid Pricing

Bidders shall complete and submit the Bid Pricing Sheet provided with this Invitation to Bid. All requested pricing shall be complete and shall include all costs necessary to perform the Work in accordance with the Contract Documents.

Federal System for Award Management

All Contractors and Subcontractors performing federally funded work on capital construction projects must be registered in the Federal System for Award Management (SAM.gov), as applicable.

The prospective bidder, and any proposed subcontractor participating in the Project, must have a valid SAM.gov Entity Registration and provide documentation of their active entity registration/profile as part of the bid submission.

If a prospective bidder or proposed subcontractor is not currently registered with SAM.gov, registration instructions are included with this Invitation to Bid.

The System for Award Management (SAM) is the official U.S. Government system used to register entities that do business with the federal government. There is no cost to register with SAM.gov. Registration may be completed at:

<https://www.sam.gov/SAM/pages/public/index.jsf>

Bidders are responsible for ensuring that their SAM.gov registration remains active and valid for the duration of the Project, as required by applicable federal requirements.

Minimum Qualifications

The successful bidder and its subcontractors must possess the following minimum qualifications:

1. Rhode Island registrations and licenses for all disciplines required to provide the work described in this Invitation to Bid.
2. A team capable of providing all the necessary services to execute the project through permitting and construction.
3. Proof of capability: Prospective Contractors must be prepared to provide any evidence of experience, performance ability and/or financial condition the Owner deems necessary to fully establish the bidder's capability to perform the work.
4. Demonstrated knowledge of and ability to comply with all applicable requirements of the Rhode Island Building Code and other applicable codes, regulations, and regulatory agencies.
5. The Owner reserves the right to reject any bid and void any award resulting from this Invitation to Bid if a bidder makes any material misrepresentation in its bid.
6. Bidders and subcontractors, as applicable, must certify in writing that they have not been suspended or debarred from doing business with any federal agency.
7. **Indemnification:** To the fullest extent permitted by law, the Contractor shall indemnify, hold harmless, and defend Children's Friend and the Designated Parties from and against all injuries, claims, damages, losses, and expenses, including, but not limited to, attorneys' fees, provided that such injury, claim, damage, loss, or expense is caused by, connected with, arises out of, or results from the Contractor's performance of work for Children's Friend, or is caused by, connected with, arises out of, or results from any act or omission of the Contractor, the Contractor's employees or subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable. The Contractor shall not be required by this Agreement to indemnify a party for the portion of any loss that is directly attributable to the negligence of the party to whom indemnification is owed, except to the extent such indemnification is permitted by law.
8. **Minimum insurance policy coverage must be:**

Commercial General Liability: Coverage shall be provided on a primary and non-contributory basis, with minimum limits of \$1,000,000 per occurrence and \$2,000,000 aggregate.

Commercial Automobile Liability: \$1,000,000 Combined Single Limit.

Occurrence Form: Coverage shall be maintained on an occurrence form with respect to liability for property damage, bodily injury and death, premises and completed operations, including contractual liability and products and completed operations. Completed operations coverage shall be maintained for a period of not less than one (1) year following completion of the Work.

Umbrella Liability: Minimum limits of \$1,000,000 are required. The limits required are not a limitation of liability. Total limits purchased shall be evidenced and will be considered in the evaluation and selection of vendors. The total limits evidenced shall meet the minimum limits required by the Contract. The Umbrella Liability policy shall provide coverage in excess of Employers' Liability, General Liability, and Automobile Liability.

Children's Friend shall be included as an additional insured on the above-referenced policies on a primary and non-contributory basis. A Waiver of Subrogation in favor of Children's Friend shall be provided.

Workers' Compensation: Must meet statutory limits in compliance with State and Federal Laws. The coverage must include Employers' Liability limits of \$500,000/\$500,000/\$500,000. A Waiver of Subrogation in favor of Children's Friend shall be provided.

Occurrence Form: Coverage shall be maintained on an occurrence form with respect to liability for property damage, bodily injury and death, premises and completed operations, including contractual liability and products and completed operations. Completed operations coverage shall be maintained for a period of not less than one (1) year following completion of the Work.

Additional Insured: List "Children's Friend," its officers, employees and agents" as additional- insured on a primary/non-contributory basis on the certificate of insurance. If you have blanket additional insured coverage, please indicate this on your certificate of insurance. Provide a Waiver of Subrogation in favor of "Children's Friend."

9. Trade contractors shall submit their license documentation in order to be considered.
10. Companies must have the financial stability to execute their work.
11. Any subcontractor performing asbestos-related work shall possess all licenses, certifications, registrations, and qualifications required by applicable federal, state, and local laws and regulations.

Section 4:

Submission Requirements

At a minimum, each Bidder shall submit a complete bid package that satisfies all requirements of this Invitation to Bid in order to be considered responsive.

Proposals shall provide straightforward, concise information that satisfies the requirements of this Invitation to Bid. Emphasis should be placed on completeness, clarity, and conformity with the Owner's instructions.

Letter of Bid

Provide a Letter of Bid that references this Invitation to Bid and confirms that all elements of the bid documents, including subsequent questions, clarifications, and responses, have been read and understood. The Letter of Bid shall be no more than one (1) page and shall be signed by an officer or authorized representative of the bidding firm.

Project Approach

Provide a brief Project Plan Approach describing the Bidder's proposed approach to completing the Work. The response should address the general methodology for performing the Work, coordination with

Children's Friend, quality control, safety, addressing potential issues, and completing the project within the required schedule.

Bidders may include additional information they believe is relevant to their approach to successful completing the Work.

Experience and References

Project References: Provide reference information for at least three (3) comparable projects. For each reference, provide the project name, owner, architect or engineer, current address, telephone number, email address, and contact person.

Safety Record: Provide the Contractor's three (3) year history of workers' compensation experience modification ratings. Also provide documentation from the Contractor's Insurance carrier supporting the rating history provided.

Schedule

The schedule is critical to the Project. Provide a proposed Project Schedule based on the milestone dates provided in this Invitation to Bid and the Bidder's assessment of the site and site conditions based on the pre-bid conference and review of the Construction Documents. Include anticipated mobilization, construction, inspection, and final completion milestones. Explain any assumptions or specific approaches that are essential to completing the Project in accordance with the proposed schedule.

Financial References

Bank Reference: Provide the firm Name, address, telephone number, and email address for the Bidder's primary banking Institution.

Credit references: Provide a minimum of three (3) credit references, including the telephone and email or fax numbers of a contact from key suppliers and/or vendors.

Section 5:

Contract Award Consideration

The Contract will be awarded to the bidder submitting the lowest responsive and responsible bid in conformance with the Scope of Work, specifications, and requirements of this Invitation to Bid.

Bidders must submit the following with their bid:

- Letter of Bid
- Completed Bid Form / Bid Pricing Sheet
- Financial References – Bank Reference and minimum of three (3) Credit References
- Three (3)-Year Workers' Compensation Experience Modification Rating History and supporting insurance carrier documentation
- Three (3) Comparable Project References
- SAM.gov Registration / UEI
- Rhode Island Contractor's License
- Prevailing Wage and Non-Prevailing Wage Pricing for the Base Bid and applicable Bid Alternates
- Proposed Subcontractor Information, if applicable
- Additional supporting documentation, as applicable

The Owner reserves the right to request additional information or clarification from any bidder as necessary to determine the bidder's qualifications and responsiveness.

General Provisions

All proposal packages shall be submitted at no cost to Children's Friend and shall become the property of Children's Friend.

The issuance of a proposal by prospective firms does not constitute in any way the issuance of a contract or intent to enter into a contract.

ATTACHMENTS

- 1. Letter of Bid**
- 2. Bid Form / Bid Pricing Sheet**
- 3. Scope of Work**
- 4. Technical Specifications**
- 5. Construction Documents / Final Drawings**
- 6. Rhode Island Prevailing Wage Rate Schedule – Davis-Bacon General Decision RI20260001, Modification # 4, dated July 30, 2026**
- 7. ACM Testing Results – SanAir Technologies Laboratory, September 8, 2026.**

END OF DOCUMENT

ATTACHMENT I

LETTER OF BID

Roof Restoration & Shingle Replacement Project

621 Dexter Street • Central Falls, RI 02863

Children's Friend

Bidder Name	
Address	
City / State / ZIP	
Primary Contact	
Date	

Re: 621 Dexter Street Roof Restoration & Shingle Replacement Project

Dear Children's Friend Procurement Team:

The undersigned Bidder hereby submits this bid for the 621 Dexter Street Roof Restoration & Shingle Replacement Project in Central Falls, Rhode Island, in accordance with the Invitation to Bid and all Contract Documents issued by Children's Friend.

The Bidder certifies that it has carefully reviewed and understands the Invitation to Bid, Scope of Work, Project Manual and Specifications, Construction Documents, prevailing wage requirements, and other documents incorporated into the solicitation, including any subsequent questions, clarifications, and responses issued by Children's Friend.

The Bidder understands that pricing is required under two separate scenarios: (1) Prevailing Wage Pricing, based on all applicable Rhode Island prevailing wage requirements, including applicable base wages and fringe benefits; and (2) Non-Prevailing Wage Pricing, based on the Contractor's applicable non-prevailing wage labor rates.

The Bidder certifies that the pricing submitted with its bid includes all labor, materials, equipment, supervision, disposal, permits, fees, inspections, coordination, and other costs necessary to complete the Work in accordance with the Contract Documents.

The Bidder acknowledges that certain related work may be performed by other contractors or trades contracted directly by Children's Friend and agrees to coordinate its work with such contractors or trades as required by the Contract Documents.

The Bidder certifies that the information submitted with its bid is true and complete and that it meets the qualifications and requirements established in the Invitation to Bid.

The Bidder understands that the Contract will be awarded to the lowest responsive and responsible bidder in conformance with the Scope of Work, specifications, and requirements of the Invitation to Bid.

Respectfully submitted,

Legal Name of Bidder	
Authorized Representative	
Title	
Signature	
Date	
Telephone / Email	

ATTACHMENT 2
BID FORM / BID PRICING SHEET
Roof Restoration & Shingle Replacement Project
621 Dexter Street • Central Falls, RI 02863

I. Bidder Information

Legal Name of Bidder	
Business Address	
City / State / ZIP	
Primary Contact	
Telephone	
Email	
Rhode Island Contractor’s License No. / Expiration	
Federal Tax Identification Number (TIN)	

2. Contractor Qualifications and Experience

Provide a brief description of the Bidder’s qualifications and experience relevant to the Work, including experience with roof restoration, roof replacement, commercial roofing, and projects of similar size and complexity. Identify the number of years the firm has been in business and summarize relevant experience, including experience with prevailing wage requirements and/or federally funded projects, if applicable.

Years in Business: _____

Brief Description of Qualifications and Relevant Experience:

Additional pages may be attached if necessary.

3. SAM.gov Information

Legal Entity Name in SAM.gov	
Unique Entity ID (UEI)	
SAM.gov Registration Status / Expiration Date	

4. Bid Pricing

Bidders shall submit separate pricing for the Base Bid and each applicable Bid Alternate under both the Prevailing Wage and Non-Prevailing Wage pricing scenarios. The applicable Rhode Island prevailing wage rates shall be those incorporated into the Bid Documents.

Bid Item	Prevailing Wage Pricing	Non-Prevailing Wage Pricing	Notes / Exclusions
Base Bid			
Add Alternate #1			
Add Alternate #2			

All pricing shall include all labor, materials, equipment, supervision, disposal, coordination, permits, fees, inspections, and other costs necessary to complete the Work in accordance with the Contract Documents.

Any assumptions, exclusions, or conditions affecting the submitted pricing must be specifically identified below. Work identified in the Contract Documents as being performed by others shall not be included in the Bidder’s Base Bid.

5. Bidder Assumptions / Exclusions

6. Proposed Project Schedule

Anticipated Mobilization / Start Date	
Estimated Construction Duration	
Anticipated Substantial Completion	

Schedule Assumptions / Conditions	
--	--

7. Project References

Provide reference information for at least three (3) comparable completed projects. For each reference, provide the project name, owner, architect or engineer, project address, telephone number, email address, contact person, approximate contract value, and completion date.

Project Reference #1

Project Name	
Owner	
Architect / Engineer	
Project Address	
Contact Person	
Telephone	
Email	
Approximate Contract Value	
Completion Date	

Project Reference #2

Project Name	
Owner	
Architect / Engineer	
Project Address	
Contact Person	
Telephone	

Email	
Approximate Contract Value	
Completion Date	

Project Reference #3

Project Name	
Owner	
Architect / Engineer	
Project Address	
Contact Person	
Telephone	
Email	
Approximate Contract Value	
Completion Date	

8. Safety Record

Provide the Contractor's three (3)-year history of workers' compensation experience modification ratings, together with documentation from the Contractor's insurance carrier supporting the rating history provided.

Year 1 Experience Modification Rating	
Year 2 Experience Modification Rating	
Year 3 Experience Modification Rating	
Supporting Insurance Carrier Documentation Included	

9. Proposed Subcontractors

Identify all proposed subcontractors that will perform a material portion of the Work. If no subcontractors are proposed, indicate "None."

Subcontractor / Company	Scope of Work	Contact Person	Phone / Email	License / Certification, if applicable

If additional space is needed, attach a supplemental list identifying each subcontractor and the applicable scope of work.

The Bidder shall be responsible for ensuring that all proposed subcontractors possess the licenses, registrations, certifications, and qualifications required for their respective scopes of work.

10. Financial References

Provide the financial references required by Section 4 of the Invitation to Bid, including one (1) bank reference and a minimum of three (3) credit references from key suppliers and/or vendors.

Primary Banking Institution – Firm Name / Contact / Address / Telephone / Email	
Credit Reference #1 – Supplier/Vendor / Contact / Telephone / Email or Fax	
Credit Reference #2 – Supplier/Vendor / Contact / Telephone / Email or Fax	
Credit Reference #3 – Supplier/Vendor / Contact / Telephone / Email or Fax	

11. Additional Information / Supplemental Documentation

The Bidder may attach additional pages or supporting documentation where additional space is needed to fully respond to any requirement of this Bid Form or the Invitation to Bid. Clearly identify each supplemental document with the applicable section of the Bid Form to which it relates.

Additional supporting documentation attached: ☐ Yes ☐ No

Number of additional pages/documents attached: _____

12. Bidder Certification and Acknowledgment

The undersigned Bidder certifies that it has carefully examined the Invitation to Bid, Scope of Work, Project Manual, Specifications, Drawings, prevailing wage requirements, and other Contract Documents made available by Children's Friend.

The undersigned Bidder certifies that the pricing submitted is complete and includes all costs necessary to perform the Work in accordance with the Contract Documents.

The undersigned Bidder acknowledges the requirement to submit both Prevailing Wage and Non-Prevailing Wage pricing for the Base Bid and each applicable Bid Alternate.

The undersigned Bidder certifies that the information provided in this Bid Form and accompanying bid submission is true and complete to the best of its knowledge and that it has not been suspended or debarred from doing business with any federal agency.

I3. Bid Submission Checklist

- ☐ Letter of Bid
- ☐ Completed Bid Form / Bid Pricing Sheet
- ☐ Financial References – Bank Reference and minimum of three (3) Credit References
- ☐ Three (3)-Year Workers' Compensation Experience Modification Rating History and supporting insurance carrier documentation
- ☐ Three (3) Comparable Project References
- ☐ SAM.gov Registration / UEI
- ☐ Rhode Island Contractor's License
- ☐ Prevailing Wage and Non-Prevailing Wage Pricing for the Base Bid and applicable Bid Alternates
- ☐ Proposed Subcontractor Information, if applicable
- ☐ Additional supporting documentation, as applicable

I4. Authorized Bidder

Authorized Representative Name	
Title	
Signature	
Date	
Company Name	
Email / Telephone	

1. Outline of the Scope of Work:

A. Children's Friend 621 Dexter Street Roof Restoration & Related Work:

Refer to Drawings and Project Manual dated **September 10, 2026** for scope of work, specifications and related details.

B. Roofing Contractor Scope of Work Outline – Base Bid:

Base Bid: The work of the Children's Friend 621 Dexter Street Roof Project and Related Work includes, but is not entirely limited to, the following:

1. For all shingled roof sections, work entails removal and replacement of shingles, gutters, downspouts as indicated on the project drawings.
2. For the flat EPDM roof section, work entails the removal, handling and legal disposal of limited amounts of thermal insulation & single ply membrane as indicated on the drawings, and infilling with new roof insulation. Work involves the application of AlphaGuard Roof Restoration System on the flat EPDM roof of the project area. Work also involves the removal, handling and disposal of designated areas of adhered single-ply membrane and related sheet-metal/membrane flashings and related debris as indicated.
3. Removal, handling and legal disposal of existing designated pitch pockets, blocking and related flashings as indicated on the drawings.
4. Temporary disconnection, protection, handling, protection and re- installation of a variety of ancillary, project-related components, including, but not entirely-limited-to, roof-mounted electrical conduit, curb-mounted rooftop equipment, and a host of similar/related work-items.
5. Asbestos-Containing Materials (ACM): Testing identified less than 1% chrysotile asbestos in the seam sealant on the flat roof. All other materials tested had no asbestos detected. Please see ACM sampling report provided by ECM as part of the Project Manual.

The Contractor shall comply with all applicable OSHA requirements and applicable federal, state, and local requirements related to asbestos-containing materials. The ACM testing results are included with the Bid Documents. The final formal report will be issued to all bidders by addendum when available.
6. Procurement and delivery of manufacturer's long-term (30 Year) roofing warranty and companion (periodic) inspection program, as stipulated in the project documents.

C. Roofing Contractor Scope of Work Outline – Bid Alternate Options:

1. ADD Alternate #1, work entails removal and replacement of wet insulation, installation of a new tapered insulation package as shown on the plans, installation of a ½” gypsum coverboard and a single ply PVC-KEE membrane.
2. ADD Alternate #2, work entails removal and replacement of wet insulation, installation of a new tapered insulation package as shown on the plans, installation of a ½” gypsum coverboard, 2-ply Powerply base layer and a Tremco Powerply Endure 100 FR modified bitumen granulated cap sheet per the Plans.

D. Related ongoing work-items and/or modifications, constructed / completed by other outside trades hired directly by the Owner include, but are not entirely limited to, the following:

1. Temporary disconnection of piping runs, electrical service-feed cables and other below-deck utilities as required for proper completion of the work.
2. Interior mechanical/electrical/plumbing disconnection to designated abandoned/obsolete plumbing-vents and mechanical-feeds to permit the safe and controlled removal by the Roofing Contractor through the course of the Work.

**CHILDREN'S FRIEND
621 DEXTER STREET**

**EPDM ROOF RESTORATION
&
SHINGLE ROOF REPLACEMENT**

TECHNICAL SPECIFICATIONS
ROOF RESTORATION & RELATED WORK

CHILDREN'S FRIEND
621 DEXTER ST.
CENTRAL FALLS, RI 02863



September 10, 2026

Prepared For:
Children's Friend
153 Summer St
Providence, RI 02903

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DIVISION 1: GENERAL REQUIREMENTS
SECTION 0001A SPECIAL CONDITIONS

1A.00 PROJECT SITE

- A. The physical/site address of the project is located at the 621 Dexter St, Central Falls, RI 02863.

1A.01 TIME FOR COMPLETION

- A. In accordance with Section 00700, GENERAL CONDITIONS, the Contractor shall make every effort to ensure the Work be completed during the 2026 construction season. If weather or other conditions prevent completion prior to end of 2026, the Owner may authorize temperature dependent Work (i.e. roof coatings) to be deferred to Spring 2027. Any and all Work must be fully completed and inspected, and all related invoices must be dated no later than April 30, 2027. This is a firm funding deadline date.

1A.02 COMMUNICATIONS

- A. All notices, demands, requests, instructions, approvals, and claims must be in writing.
- B. Any such notice shall be deemed to have been given as of the time of delivery, or of actual receipt in the case of express deliveries, or in the case of mailing, when it should have been received in due course of post.
- C. For communicating purposes, the office address of the Contractor shall be that stated on the signature page of the contract; that of the Owner shall be as stated in the Notice to Contractors. Any subsequent change in address of either party shall be communicated to the other in writing.
- D. Project decisions shall be made by the appropriate staff at the Children's Friend.

1A.03 PLANS AND SPECIFICATIONS

- A. The Owner will furnish to the Contractor, without charge, electronic-copies of technical plans/specifications. Reproduction, printing and plotting costs are to be borne by the Contractor.

1A.04 WORK BY THE OWNER (See Section 01010)

1A.05 COORDINATION (See Section 01050)

1A.06 CONDUCT OF THE WORK (See Section 01050)

1A.07 ALTERATION

1A.08 GENERAL DIRECTIONS (See Section 01050)

1A.09 TEMPORARY UTILITIES (See Section 01500)

1A.10 DRAWINGS AND SPECIFICATIONS

- A. The drawings and specifications attached herein, and such drawings and specifications as may be issued by the Owner shall constitute an integral part of this section and shall serve as the working project documents.
- B. Drawings shall not be scaled. Field verification, prior to the submission of Bids, is required to confirm actual locations, dimensions, roof construction/composition and levels. Verify that all existing conditions, as shown, are suitable to receive the work intended. Notify the Owner of any discrepancies before beginning the work that is in question. Renovation work requires careful examination before bidding. No compensation will be granted for additional work caused by unfamiliarity with site conditions that are visible or readily construed by experienced observers. Unless noted otherwise, new or patched work shall match prevailing adjacent existing work.
- C. All items not specifically mentioned in the specifications or noted on the drawings, but which are obviously necessary to make a complete working installation, shall be included.
- D. It is the intent of these Contract Documents to require a complete project, with all components complete, furnished in appearance, fully operational and suitable for its intended purpose. If the documents fail to carry out a part of the work required for a complete job, advise the Owner in writing before bid-submission. Otherwise, provide all work required to meet these requirements.

1A.11 MATERIALS

- A. Whenever a manufacturer's name or style number is used, it shall be indicative of a required component. Other products/supplies which are generically-referenced are to be carefully-reviewed and submitted to the Owner for approval. In all cases, approval must be obtained in writing from the Owner for final selection of any such materials and/or services. The Owner's decision shall be final with no appeal there from.

1A.12 WARRANTIES AND INDEMNIFICATION

- A. In addition to other guarantees or warranties required under law or other sections of the specification, the Contractor warrants all materials furnished and labor performed under this Contract to be free from defects or errors in workmanship or installation for a period of two (2) years from the date of Substantial Completion of work, as certified by the Owner, except that for items of work not completed at the time of Substantial Completion, the warranty period shall be for two (2) years from completion of those items of work. The Contractor shall indemnify the

Owner for the full cost of any damage to the property that may result by reason of such defects or errors and shall indemnify the Owner from and against any and all claims, demands, losses, costs, expenses, liabilities, and damages, including reasonable attorney's fees and expenses, arising out of claims on account of this Contract, including but not limited to claims brought against the Owner for alleged infringement of patents based upon any methods of construction of application or upon materials furnished under the Contract.

1A.13 LICENSING

1A.14 OWNER COORDINATION

1A.15 AWARD OF CONTRACT

- A. A Contract shall be awarded by the Owner, as it deems to be in its best interest, to the lowest eligible and responsible bidder.

The awarded bidder will be required to enter into a Construction Agreement with Children's Friend. During the selection process, the Owner may provide the Contractor with their standard Construction Agreement template which includes Children's Friend's standard terms & conditions and insurance requirements. It will be necessary for the Contractor to review the Terms and Conditions presented by the Owner prior to entering into the Contract with the Owner.

1A.16 COMPLETE COST

- A. The Proposed Contract Price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental to, the work described.
- B. Submitted costs shall also include the price for all permits, fees and sales tax. The building permit is to be procured/obtained by the Contractor.

1A.17 HOURS OF OPERATION

- A. Work hours on site are 7:00 AM to 5:30 PM Monday through Friday unless otherwise approved by the Owner in writing.
- B. Specific restrictions and/or alterations to available work-hours may be generated by the Owner, based-on specific requirements of the Owner's operations. Any such modification of change in the available work-hours will be described to the Contractor in-advance. Specific requirements that mandate the execution of the work off-hours, on weekends or holidays, or other forms of premium time, will be discussed and negotiated with the Contractor.
- C. There may be limited specific activities which require reduced noise. Coordinate activities with Owner or Owners Representative.

END OF SECTION

DIVISION 1

SECTION 010100 SUMMARY OF WORK

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Fully-cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings to require that the specified construction be complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 DESCRIPTION OF WORK - GENERAL

- A. The work of the Contract generally consists of the restoration of the EPDM flat roof with an AlphaGuard Roof Restoration system and to remove and replace the shingle roof sections and associated gutters and down spouts. Ancillary and associated work involves miscellaneous carpentry, plumbing, rooftop accessories and sheet-metal fabrications. Test Cuts in the EPDM section and shingled roof sections were tested for ACM. See attached ACM Report as part of this project manual.
 - 1. Children's Friend is a multiple story structure located at 621 Dexter St, Central Falls, RI 02863.
 - 2. Access to the roof areas will be from the contractor provided ladder or stair-tower staging adjacent to the Project Site. Coordinate access with Owner or Owner's Representative. Except as specifically-identified above, no personnel are allowed to enter any portion of the building-interior, without an escort from the Owner's designated representative.
 - 3. The operations inside this facility will be in full and active service/use while roofing work is proceeding. Coordinate with the Owner or owner's Representative each day.

- B. The work of the project includes, but is not entirely limited to, the following:
1. Base Bid: Restore the flat roof section with an AlphaGuard Roof Restoration System. Add Alternate 1: replace wet insulation, add mechanically fastened tapered insulation, adhered ½" gypsum coverboard and adhere 60 mil PVC-KEE single ply membrane. Add Alternate 2: replace wet insulation, add mechanically fastened tapered insulation, adhered ½" gypsum coverboard and 2-ply Powerply base sheet and adhered modified bitumen Powerply endure 100 FR granulated cap sheet.
 2. Removal of obsolete/covered/abandoned rooftop curbs, supports and penetrations. Work entails the installation of steel plate or steel deck, properly-installed over openings created through the removal of obsolete items.
 3. Removal and replacement of all layers of existing perimeter sheet-metal flashings and replacement of existing rotted perimeter wood blocking components.
 4. Installation of additional layers of new, pressure-treated wood blocking to match the maximum height of new thermal-insulation components.
 5. Removal and replacement of existing sheet-metal projection flashings (sleeves/umbrellas).
 6. Installation of new pressure-treated wood sleepers (embedded and above-roof) and protective pads to properly-support rooftop equipment.
 7. Shop-fabrication and installation of new sheet-metal flashings at roof perimeters, curbs and related details, as required to provide a watertight assembly.
 8. Execution of various, miscellaneous flashing details, terminations, rough-carpentry and related-items to deliver the roofing assembly into a long-term, leak-free and aesthetically-pleasing condition.
 9. Procurement and delivery of a thirty (30) year manufacturer's warranty and companion inspection/maintenance program, as stipulated in the project documents.
- C. As outlined, the Contractor shall supply all material, labor, equipment, insurance, temporary protection, tools and expertise necessary for the proper and legal completion of the work as described in the Plans and Specifications, in accordance with the Contract Documents, good construction practice, all applicable codes and laws, and as required by the materials manufacturers.
- D. Supply all protection necessary to protect workers, building occupants and adjacent personnel.
- E. All means and methods are the responsibility of the Contractor.

- F. The Contractor is solely responsible for safety on the job site.

1.03 UNIT PRICES

- A. The Unit Prices are described on the Bid Form.

1.04 BID ALTERNATES

- A. The Bid Alternates are described on the Bid Form.

1.05 TIME OF COMPLETION

- A. The work shall commence at the issuance of a Contract and the Contractor shall make every effort to ensure the Work be completed during the 2026 construction season. If weather or other conditions prevent completion prior to end of 2026, the Owner may authorize temperature dependent Work (i.e. roof coatings) to be deferred to Spring 2027. Any and all Work must be fully completed and inspected, and all related invoices must be dated no later than April 30, 2027. This is a firm funding deadline date.

1.06 LIQUIDATED DAMAGES

- A. Not applicable.

1.07 INTENT OF THE PROJECT MANUAL

- A. Whenever “furnish,” “install,” or “provide” is used in the Contract Documents, it shall mean to erect, install, connect, make operative, and supply all labor and materials, including miscellaneous fittings, hardware, blocking, and accessories necessary to complete the installation of the specified item.
- B. The scope of work is indicated in the Project Manual. Areas of required work indicated on the drawings are for illustration and are not to be interpreted as representing quantities, exact locations, and/or the extent of work required. The Owner makes no representation of the exact quantities of work required. It shall be the responsibility of the Contractor to do all work to the complete fulfillment of the requirements of the Project Manual.

1.08 ERRORS, OMISSIONS, AND CONFLICTS IN THE PROJECT MANUAL

- A. In the case of conflicts in the Drawings and the Specifications noticed by the Contractor, the Owner shall be notified immediately in writing of such errors and/or omissions. In no case shall the Contractor proceed without written authorization from the Owner.

1.09 UNFORESEEN FIELD CONDITIONS

- A. In the case of unforeseen field conditions, the Contractor shall notify the Owner immediately in writing of such conditions. In no case shall the Contractor proceed without written authorization from the Owner. If such unforeseen conditions result in additional expense, the Contractor shall not proceed without the written approval of the Owner.

END OF SECTION

SECTION 010400 EXISTING CONDITIONS

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings that the furnished construction be complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 EXISTING CONDITIONS

- A. Before submitting a Bid, the Contractor shall make a thorough examination of the conditions at the site, checking the requirements of the Plans and the Specifications with the existing conditions.
- B. No claim for extra compensation or extension of time will be allowed on account of the Contractor's failure to estimate properly the quantities, locations, and measurements of all items required to complete the work which could be discerned from visiting the site.
- C. The Contractor shall report any discrepancies to the Owner and request an interpretation.
- D. It shall be the Contractor's responsibility to verify actual conditions and to make determinations as to the best possible method for performing the work indicated on the Drawings and Specifications.

END OF SECTION

SECTION 010410 OWNER COORDINATION

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings that the furnished construction is complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 COORDINATION

- A. Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation.
- B. Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results.
- C. Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.
- D. Make provisions to accommodate items scheduled for later installation.

1.04 ADMINISTRATIVE PROCEDURES

- A. Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:
 - 1. Preparation of schedules.
 - 2. Installation and removal of temporary facilities.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Project closeout activities.

1.05 COMMUNICATIONS

- A. The Contractor shall provide the Owner's designated representative with cellular phone numbers for all key Contractor staff. These phone numbers shall be in full-service, available for the Owner's use during normal work-hours and during off-hours, weekends.

1.06 INSPECTION OF CONDITIONS

- A. The Contractor shall inspect all substrates and conditions under which Work is performed. Do not proceed until unsatisfactory conditions have been corrected. The Contractor shall field-verify all measurements and existing conditions/constructions at each site; shall be responsible for their accuracy and shall perform the Work in conformity with same. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on any supplied Drawings.

1.07 MANUFACTURER'S INSTRUCTIONS

- A. Comply with manufacturer's installation instructions and recommendations to the extent that they are more stringent than requirements in Contract Documents.

1.08 INSPECT

- A. Inspect material immediately upon delivery and again prior to installation. Reject damaged and /or defective items.

1.09 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply temporary, protective coverings where required to ensure protection from damage or deterioration at Substantial Completion.

END OF SECTION

SECTION 010500 CONDUCT OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

1.02 Contractor's use of premises

- A. The Contractor shall be granted limited-access to spaces, adjacent to the building, during the construction process. The Contractor shall coordinate and restrict their activities so as not to interfere with the Owner's operations.
- B. Keep driveways, truck aprons and entrances clear at all times. Do not use unauthorized areas for parking or storage of materials. Schedule deliveries to minimize requirements for storage of materials.

1.03 PROJECT MANAGEMENT

- A. Building spaces will be fully-occupied during construction by Owner personnel and/or outside Contractors. The Contractor shall take all necessary precautions to ensure the safety of any site-personnel throughout construction.
- B. The work must be completed in a continuous and uninterrupted operation. The Contractor must use sufficient personnel and adequate equipment to complete all the necessary work requirements within a minimum period of time.
- C. Damage to Person and Property
 - 1. The buildings and premises are presently occupied with Owner operations, and will remain-so, throughout construction. All work shall be executed with as little inconvenience as reasonably possible and without danger to site personnel and/or permanent structures, within the project area. Any damage to buildings, roads, bituminous concrete areas, fences, lawn areas, trees, shrubbery, electric or telephone poles, underground utilities, etc., shall be repaired by the Contractor at his own expense. Damaged property shall be returned to its original condition prior to the damages within a reasonable time period, except all utility outages shall be repaired immediately.
- D. Shutdown of Services
 - 1. The Contractor's attention is especially called to the fact that continuous operation of services at this site is mandatory. During the period of construction of the new work and/or alterations to the existing work, the progress and sequence of installation shall be carefully planned and

approved by the Owner. If it is expected that the facility will be left without water, electricity, gas, sanitary facilities, or any other services, the Contractor shall provide immediate written notice to the Owner and not proceed until written authorization has been received from the Owner.

E. Protection of Persons and Property

1. The Contractor shall be aware that special consideration must be made to the fact that they are working in a complex, busy and fully-functioning facility. Tools, construction equipment, and construction materials are not to hinder the Owner's operations at any time, without prior permission from the Owner. Open areas left during the course of construction must be covered or otherwise made safe. Any considerations made for the safety of the building occupants shall be made to the Owner's approval.
2. The Contractor shall, at all times, leave an unobstructed way along the roadways and walks, and shall maintain barriers and lights for the protection of all persons and property in all locations where materials are stored, or where work is in-progress.

F. Care of Work

1. All work is to be carefully-protected so that no damage will come to it from water, accident, or any other cause, which may come to any of the work, shall be repaired immediately by the Contractor at his own expense and without additional cost to the Owner. This shall also apply to any abutting or adjoining work on the premises. The Contractor shall be responsible for any damage, and in the event of such damage, the Contractor shall repair the damage immediately at his own cost and without additional cost to the Owner.

G. Removal of Debris

1. Debris of any nature shall be completely-removed from the work-area at the end of each day and delivered into containers provided/supplied by the Contractor. The area of work must be left clean at the end of each work day to a standard acceptable to the Owner. Noise and pollution must be kept to a minimum.

H. Security

1. The Contractor is responsible for the security of all work until the Owner accepts the work.

I. Extermination

1. The Contractor is responsible for any extermination that may be required during the course of construction to

- a. Allow construction workers to work in safe, sanitary conditions, or
 - b. Combat migration of pests disturbed by construction operations.
- J. Egress
 - 1. Required egress is to be maintained at all times.
- K. Unless specifically authorized by the Owner, in writing, the work must be conducted between the hours of 7:00 AM and 5:30 PM on Monday through Friday. Work may be done on Saturdays, or Sundays after authorization by the Owner.
- L. There shall be no storage of materials, tools, and/or equipment within any of the Owner's facilities. Any storage within the Owner's facilities must be authorized by the Owner, in-advance, in writing.
- M. Only materials and/or equipment intended and necessary for immediate use shall be brought into the site. At the end of each work day and at the completion of each phase of work, equipment and leftover or unused materials shall be removed from the site.
- N. Workers are not permitted to smoke on the Owner's property. Failure on the part of the Contractor to police/control their staff will result in a full-time, fire-department member being assigned to perform fire-control services. All such costs/expenses shall be absorbed by the Contractor.

1.04 COORDINATION

- A. The Contractor shall submit for approval to the Owner a detailed operational plan showing the sequence of operations prior to commencement of any work at the site. Any changes to this operational plan must be approved by the Owner.
- B. The Contractor must retain on the Work during its progress a competent full time representative, satisfactory to the Owner. This representative shall not be changed, except with the consent of the Owner. The representative shall be in full charge to the work and all instructions given to this person by the Owner shall be binding.
- C. The Contractor shall supply to the Owner the name, cellular telephone number of the responsible person (both the Project Manager and the Site Supervisor) who may be contacted during off-hour emergencies on the project. The Contractor's Project Manager and/or Site Supervisor must be able to be contacted immediately during the hours of work and during non-work-hours for emergencies on the project via cellular telephone.
- D. The Contractor shall cooperate at all times with the Owner, and ensure the cooperation of his key personnel and that of his Subcontractors.

1.05 OWNER'S COOPERATION

- A. The Owner shall assist the Contractor to perform the Work in accordance with the approved operational plan by removing obstructions that may be in the Contractor's way, upon proper notice from the Contractor.
- B. The Owner may provide a Coordinator to act as liaison with building-occupants and to assist the Contractor in fulfilling project-related notifications.

END OF SECTION

SECTION 013000 SUBMITTALS: SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

1.01 GENERAL REQUIREMENTS

- A. This Section specifies requirements for handling submittals, samples, etc.
- B. Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.
- C. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- D. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- E. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- F. It is the intent of the Specifications and the Drawings that the furnished construction be complete in every respect, and that this Contractor shall provide all equipment needed and usually-furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

- A. **Timeliness:** The Contractor shall transmit each submittal to the Owner sufficiently in advance of performing related Work or other applicable activities so that the installation is not delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Owner in advance of the Work.
- B. **Sequence:** The Contractor shall transmit each submittal in a sequence which will not result in the Owner's approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- C. **Contractor's Review and Approval:** Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Owner. Submittals shall be accompanied by a transmittal notice stating name of Project, date of submittal, "To," "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section, or Drawing No. to which the

submittal refers, purpose (first submittal, resubmittal), description, remarks, distribution record, and signature of transmitter.

- D. Owner's Action: The Owner will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
1. Final Unrestricted Release: Where marked "Approved" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 2. Final-But-Restricted Release: When marked "Approved as Noted" the Work may proceed provided it complies with the Owner's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend on these compliances.
 3. Returned for Re-submittal: When marked "Revise and Resubmit" or "Disapproved" the Work covered by the submittal (such as purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Owner's notations stating the reasons for returning the submittal.
- E. Processing: All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.

1.03 SUBMISSION OF SHOP DRAWINGS

- A. Shop Drawings shall be complete, giving all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of connection thereto.
- B. Shop Drawings shall be for whole systems. Partial submissions will not be accepted.
- C. The Owner reserves the right to review and approve shop drawings only after approval of related product data and samples.
- D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Owner's stamp.
- E. The Contractor shall submit to the Owner two (2) black line prints of each shop drawing and one (1) digital copy. Prints shall be mailed or delivered in roll form. Each submittal shall be accompanied by a transmittal notice.

- F. When the transparency is returned by the Owner with the stamp “Revise and Resubmit” or “Disapproved”, the Contractor shall correct the original drawing or prepare a new drawing and resubmit a transparency and two prints thereof to the Owner for approval. This procedure shall be repeated until the Owner’s approval is obtained.
- G. When the transparency is returned by the Owner with the stamp “Approved” or “Approved as Corrected”, the Contractor shall provide and distribute the prints for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 4 prints to the Owner.
- H. The Contractor shall maintain one full set of approved shop drawings at the site.

1.04 SUBMISSION OF PRODUCT DATA

- A. The Contractor shall submit one (1) digital copy and two (2) hard copies of Product Data to the Owner. All such data shall be specific and identification of material or equipment submitted shall be clearly marked in ink. Data of general nature will not be accepted.
- B. Product Data shall be accompanied by a transmittal notice. The Contractor’s stamp of approval shall appear on the printed information itself, in a location, which will not impair legibility.
- C. Product Data returned by the Owner as “Disapproved” shall be resubmitted in 2 copies until the Owners approval is obtained.
- D. When the Product Data are acceptable, the Owner will stamp them “Approved” or “Approved as Corrected”, retain 1 copy, and return 1 copy to the Contractor. The Contractor shall generate, provide and distribute additional copies as may be required to complete the Work.
- E. The Contractor shall maintain one full set of approved, original, Product Data at the site.

1.05 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples of items of interior finishes shall be submitted all at once to permit a coordinated selection of colors and finishes.

- D. Samples, which can be conveniently mailed, shall be sent directly to the Owner accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- E. All other samples shall be delivered at the field office of the Project Representative with sample identification tag, attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Owner.
- F. If a sample is rejected by the Owner, a new sample shall be resubmitted in the manner specified hereinabove. This procedure shall be repeated until the sample is approved by the Owner.
- G. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications, at no additional cost to the Owner.

END OF SECTION

SECTION 015000 TEMPORARY FACILITIES

1.01 GENERAL REQUIREMENTS

- A. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such prior to Substantial Completion must be with the concurrence of the Owner. The Contractor bears full responsibility for re-providing any facility removed prior to Substantial Completion
- B. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Owner or specifically noted in the specifications.
- C. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- E. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- F. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- G. It is the intent of the Specifications and the Drawings that the furnished construction be complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 FIELD OFFICES

- A. Not applicable.

1.03 TEMPORARY TOILETS

- A. The Contractor shall provide and service an adequate number of toilet booths with chemical type toilets. Owner's sanitary facilities are not available for use by the Contractor.
- B. The toilets shall be erected in a location approved by the Owner and shall be maintained by the Contractor in a clean and orderly condition in compliance with all local and state health requirements.

1.04 TEMPORARY CONSTRUCTION FENCE

- A. The Contractor shall be responsible for providing and maintaining temporary fencing or barricades around any ground-based staging-areas, hoisting-equipment, materials and/or similar activities, as may be necessary to assure the safety of all persons authorized or unauthorized. Such protective measures shall be located and constructed as required by local, state, Owner and federal mandates, laws, codes, and/or regulations.

1.05 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- A. The Contractor shall provide heated storage containers, temporary buildings, or trailers as required for the performance of the Contract.
- B. Materials shall be handled, stored, warmed, installed, cleaned, and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

1.06 TEMPORARY STAGING, STAIRS, CHUTES

- A. Debris shall not be allowed to fall freely from the building. Materials shall not be dropped from roof surfaces. Chutes will not be permitted. Stock and remove all debris by crane-mounted scale-pans.
- B. Access to the project roof areas shall be from the Contractor provided ladders or stair tower staging located adjacent to the project Site. Coordinate access with the Owner or Owners Representative. Except as may be specifically-outlined, no personnel are allowed to enter any portion of the building-interior, without an escort from the Owner's designated representative.

1.07 HOISTING FACILITIES

- A. Except as may be otherwise specified, the Contractor shall provide, operate, and utilize hydraulic crane equipment to hoist materials/supplies to/from the roof surface.

1.08 TEMPORARY WATER

- A. The Contractor may make use of the available water supply at the site for construction purposes, provided the permission of the Owner is obtained beforehand and only as long as the water is not used wastefully.
- B. The Contractor shall provide all necessary piping and hoses to utilize the available sources of water.
- C. The Contractor shall provide an adequate supply of cool drinking water with individual drinking cups for personnel on the job.

1.09 TEMPORARY ELECTRICITY

- A. The Contractor may make use of the electricity available at the site, metered and paid for by the Owner, provided that the Contractor shall supply proper adapters and extension cords.
 - 1. Where heavy-duty electric equipment drawing current in excess of 15 amperes is involved, the Contractor shall provide temporary service to supply the power.
 - 2. The temporary electric service shall include, but not be limited to labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project.
 - 3. Transformers and meters, when required by the power company, will be furnished by the power company and the contractor shall pay the costs therefore.
- B. Temporary electrical Work shall be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed.
- C. All temporary work shall be provided in conformity with the National Electric Code, State laws, and requirements of the power company.

1.10 WEATHER PROTECTION

- A. "Weather Protection" means the temporary protection of that Work adversely affected by moisture, wind, and cold by covering, enclosing, and/or heating.
- B. The Contractor shall assume the entire responsibility for weather protection during, construction (until Substantial Completion), and shall be liable for any damage to any Work caused by failure to supply proper weather protection to installed or stored-components.
- C. It is to be specifically understood that the Contractor shall do no work under any conditions deemed unsuitable by the Contractor or the full-time, jobsite inspector. This provision shall not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

END OF SECTION

SECTION 015100 PROTECTION

1.01 PROTECTION OF PERSONS AND PROPERTIES

- A. All Owner facilities will be occupied during construction. The Contractor shall take all necessary precautions to ensure the safety and convenience of any/all personnel in, or near, the project site.
- B. Any damage to buildings, roads, concrete and bituminous areas, fences, lawn areas, trees, shrubbery, poles, underground utilities, etc. shall be made good by and at the Contractor's own expense, all to the satisfaction of the Owner.
- C. The Contractor shall patch, repair and/or replace all adjacent materials and surfaces damaged after the installation of new work at no expense to the Owner. All repair and replacement work shall match the existing in kind and appearance.

1.02 TEMPORARY PROTECTION

- A. The Contractor shall:
 - 1. Protect buildings and materials at all times from exposure to water, dust, debris and/or other construction related nuisances. Provide all necessary equipment, expertise and planning to keep newly-installed materials watertight throughout construction.
 - 2. Provide temporary watertight enclosures for openings in roof decks when and as required to protect the Work from damage by inclement weather.
- B. Completed roof surfaces shall not be subjected to traffic nor shall they be used for storage of materials. Where some activity must take place in order to carry out the Work, adequate protection must be provided.
- C. After the installation of the Work is completed, the Contractor shall be responsible for its protection and for repairing, replacing, or cleaning any such Work which has been damaged by other trades or by any other cause, so that all Work is in first class condition at the time of Substantial Completion.

1.03 ACCESS

- A. The Contractor shall, at all times, leave an unobstructed way along walks and roadways, and shall maintain proper barriers (not Snow Fences) and lights for the protection of all persons and property in all locations where materials are stored or work is in progress.

1.04 SECURITY

- A. The Contractor shall be responsible for providing all security and safety precautions necessary to protect the Contractor's and Owner's interests.

1.05 NOISE AND DUST CONTROL

- A. The Contractor shall take special measures to protect the building-occupants, neighbors, and all site-personnel from noise, dust and other disturbances by:
 - 1. Keeping common pedestrian and vehicular circulation areas clean and unobstructed;
 - 2. Insulate work areas from occupied portions as far as possible; and
 - 3. Sealing dust and fumes from contaminating occupied spaces.

1.06 FIRE PROTECTION

- A. The Contractor shall take necessary precautions to insure against fire during construction. The Contractor shall be responsible to insure that the area within contract limits is kept orderly and clean and that combustible rubbish and construction debris is promptly removed from the site.
- B. Installation of equipment suitable for fire protection shall be done as soon as possible after commencement of the Work.

1.07 WIND PROTECTION

- A. Should high-wind warnings be issued by the U.S. Weather Bureau, the Contractor shall take every precaution to minimize danger to persons, to the Work, and to the adjacent property.

END OF SECTION

SECTION 015200 CLEANING UP

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings that the furnished construction be complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 CLEANING DURING CONSTRUCTION

- A. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on the site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
- B. Wet-down dry materials and rubbish to lay dust and prevent blowing dust.
- C. Do not allow materials and rubbish to drop free or be thrown from roof surfaces.
- D. Maintain the Site free from accumulations of waste, debris, and rubbish.

1.03 FINAL CLEANING

- A. Prior to submitting a request to the Owner to certify Substantial Completion of the Work, the Contractor shall inspect all interior and exterior spaces (with the Owner) and verify that all waste materials, rubbish, tools, equipment, machinery, and surplus materials have been removed, and that all sight-exposed surfaces are clean.
- B. Unless otherwise specified under other sections of the Specifications, the Contractor shall perform final cleaning operations as herein specified prior to final inspection.
- C. Cleaning shall include all surfaces, interior and exterior, which the Contractor has had access to, whether new or existing.
- D. Use cleaning materials which will not create a hazard to health or property and which will not damage surfaces.
- E. All broken or defective glass caused by the Contractor's Work shall be replaced at the expense of the Contractor.
- F. Remove mastic, adhesive, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed exterior surfaces.
- G. Repair, patch, and touch up marred surfaces to the specified finish, to match adjacent surfaces.
- H. Broom-clean all exposed, paved surfaces. Rake clean other surfaces of grounds.
- I. Owner's responsibility for cleaning commences at Substantial Completion.

END OF SECTION

SECTION 017000 PROJECT CLOSEOUT

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings that the furnished construction is complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 SUBSTANTIAL COMPLETION

- A. Prior to requesting Substantial Completion the Contractor shall make a thorough inspection of the Work. During this inspection the Contractor shall prepare a comprehensive list of all items remaining to be completed or corrected. This list shall include all remaining Contractor and Subcontractor items to be provided under the Contract Documents.
- B. Upon completion of the items noted on the Contractor's list the Contractor shall notify the Owner that the Work is Substantially Complete. The Owner shall then conduct a similar thorough inspection. If the Owner agrees that the Work is Substantially Complete, the Owner will promptly make a thorough inspection and prepare a punch list setting forth in accurate detail any items on the Contractor's list and additional items that are not acceptable or incomplete. The Contractor shall coordinate all Subcontractors to achieve prompt completion of the punch list.
- C. The Contractor shall not be relieved of the responsibility to provide Contract items left off of the Owner's punch list.
- D. If the Owner determines that the Work is not Substantially Complete, the Owner shall inform the Contractor of those items that must be completed before the Owner will prepare a punch list. Upon completion of those items, the Contractor shall again request the Owner to prepare a punch list.

- E. When the punch list has been prepared, the Owner will arrange a meeting, with the Contractor and Subcontractors to identify and explain all punch list items and answer questions on work, which must be done before final acceptance.
- F. The Owner may revise the punch list from time to time, to ensure that all items of Work are properly completed.

1.03 RECORD DRAWINGS

- A. Consult the individual sections of the Specifications for the specific requirements of those sections. In cases of inconsistency the more stringent requirement, as directed by the Owner, shall be required.
- B. Prior to final payment and completion the Contractor shall provide all marked up As Built Drawings as required under other sections of the Specifications.
- C. Copies of all Building and other construction-related Permits shall also be provided.

1.04 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Consult the individual sections of the specifications for the specific requirements for those sections and for further details and descriptions of the requirements
- B. Prior to final payment and completion the Contractor shall provide all Maintenance Instructions for newly-installed construction components.

END OF SECTION

SECTION 017200 SURVEYS AND RECORD DRAWINGS

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings that the furnished construction be complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 SURVEYS

- A. Upon completion of the Work, the Contractor shall provide the following As-Built drawings to the Owner, viz. one (1) set of paper copies and an electronic (PDF) version. The drawings shall be the same size as the Contract Document drawings in the Contract Documents.

1.03 RECORD DRAWINGS

- A. Record Drawings shall consist of all the Contract Drawings.
- B. From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes.
- C. All changes, including those issued by Addendum, Change Order, or instructions by the Owner shall be recorded. As Built drawings shall be prepared for all Work of the entire project.
- D. At Substantial Completion the Contractor shall submit the complete set of marked up As Built drawings to the Owner. The Contractor shall check all marked up As-Built drawings prepared by subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct, prior to submission to the Owner.
- E. The Owner shall review the marked up As-Built drawings and verify by letter to the Contractor that the Work is complete.
- F. The Contractor shall incorporate all changes onto original drawings.

- G. Submission of accurate marked up As-Built drawings and their approval by the Owner shall be a condition precedent to final payment.

END OF SECTION

DIVISION 2 – 15: TECHNICAL SPECIFICATIONS
SECTION 020500 SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The work of this section consists of the selective demolition and legal disposal of all existing materials identified for removal.
- B. Demolition work shall include but is not entirely limited to the following:
 - 1. Removal and legal disposal of selective portions of existing asphalt roof shingles, and related underlayment, and gutter systems as indicated and related materials for the installation of new ice & water shielding underlayment and related siding, roofing and gutter and downspout systems as indicated in the contract documents.
 - 2. Removal and legal disposal of selective portions of any damaged roof sheathing or wood blocking encountered during demolition, and replacement to match existing materials shall be by Unit Cost as noted in the Bid Form.
- C. The Roofing Contractor is required to supply, erect and maintain extension-ladder and/or stair tower access to provide a safe means-of-access to the roof surfaces for their workforce. Extension-ladders or stair towers to various roof levels are to be removed or secured at the end of each working-day to help prevent unauthorized access. All extension ladders and stair towers shall be fully OSHA-compliant and maintained in proper working-order at all times.
- D. The Contractor is made aware that the existing buildings will be fully occupied for the duration of construction. The Contractor is responsible for taking all necessary steps to keep the existing roofing systems in a watertight condition throughout the duration of the project. The Contractor shall exercise extreme caution during demolition activities so that internal spaces and the public are protected from damage and/or injury.
- E. The Contractor shall have sole responsibility for accuracy of all measurements, estimates of material quantities, existing roof composition, sizes and other site conditions that will affect the work. Any existing roof composition information supplied to Bidders prior-to their bid-submission is provided as a courtesy, and is not guaranteed to be accurate.
- F. The drawings indicate and show limits of construction for this project. The specifications specify material and work requirements for this

project. Both are complementary to each other and both shall be followed to complete the work.

1.02 RELATED WORK

- A. All of the Project Documents, including any General and/or Supplementary Conditions and Project Manual Forms apply to the work of this Section.
- B. Carefully examine all of the Project Documents for requirements which affect the Work of this Section. The exact scope of work of this Section cannot be fully-determined without a thorough review of all specification sections and other Project Documents.

Related Sections:

Section 061000 - Rough & Finish Carpentry

Section 070150 – Rehabilitation of Single Ply Roofing

Section 073110 - Asphalt Shingles

Section 074113 – Metal Standing Seam Roof Panels, Ventilated

Section 077100 – Gutters, Downspouts and Snow Guards

1.03 COORDINATION

- A. The Roofing Contractor is designated as the General Contractor for this project. It is the responsibility of the Roofing Contractor to coordinate the work of this Section with all other work (including any Owner-provided sub-contractors).
- B. Coordinate daily scheduled work with the Owner's designated representative each day prior to beginning work on site. Provide a weekly schedule of proposed schedule of work for review with the Owner's designated representative prior to the start of work each week.

1.04 JOB CONDITIONS

- A. Work hours for the project will be between the hours of 7:00 a.m. and 5:30 p.m. Monday through Friday, Work may be done on Saturdays, or Sundays after authorization by the Owner..
- B. The Contractor shall carefully-inspect the premises prior to the submittal of his proposal for conditions which may affect his work.

C. Demolition, storage of materials, removal of debris and construction operations shall be conducted to minimize interference with the Owner's operations. All demolition will be completed in accordance with pre-defined schedules/windows, as provided by the Owner.

D. Owner shall provide power for lighting, small tools and similar items at no cost to the Contractor, but Contractor must employ a licensed electrician (satisfactory to the Owner) to make any required connections related to any temporary wiring. No electrical equipment larger than 1500 Watts shall be allowed to be connected to the Owner's lines unless Owner is reimbursed for utility company charges.

E. All hoisting, demolition and hauling equipment required for the proper completion of the work shall be furnished, installed, operated and maintained in safe condition by the Contractor. All crane costs associated with the delivery and/or disposal of materials to/from the roof surfaces is the responsibility of the Roofing Contractor.

F. The Contractor shall remove all debris from the project site and deliver all such debris into dumpster/dump-trailers supplied by the Contractor. The Contractor is responsible for handling/transporting/facilitating the legal disposal of all debris generated through the course of the project. The safe and controlled delivery of debris into dumpsters/dump-trailers shall be the complete-responsibility of the Contractor.

G. No mechanized demolition equipment shall be permitted on the various roof decks. All demolition equipment shall be approved by the Owner prior to the start of construction.

H. The Contractor bears sole responsibility for the protection of the interior and exterior portions of the structure (and its contents) from inclement weather throughout the completion of the project.

I. The Contractor is required to supply/provide the Owner with an accurate roof-plan drawing indicating the Contractor's planned-progress through each portion of the project. Incidental-debris (dust, minor-quantities-of-dirt, etc.) will be cleaned-up by the Owner.

J. The Contractor is fully-responsible for protecting all interior portions of the building during roof deck replacement, roof deck infill operations and/or the removal/replacement of roof drain assemblies. Carefully-protect interior building components throughout all phases of such work. All job-related debris shall be cleaned-up (immediately), to the satisfaction of the Owner.

K. It will be the responsibility of the Contractor to ensure that each Unit remains weather tight for the duration of the scope of work. Any cost for repairs for

damage caused by the failure of the ability to keep the Unit weather tight during construction operations will be paid for by the Contractor.

1.05 PERMITS

A. The Roofing Contractor, shall obtain all necessary authorizations, including Building Permits, licenses and other requirements necessary for the legal execution of the work. All costs associated with the purchase of the Building Permit shall be the financial responsibility of the Roofing Contractor.

B. The Roofing Contractor shall bear responsibility to provide all necessary notices and comply with all regulations of all authorities having jurisdiction, including State, County, and Town Building and Sanitary Laws, Rules, Ordinances, or Regulations, relating to the designated roof replacement Scope. The Roofing Contractor shall pay all inspection fees and costs imposed by the above.

C. The Contractor shall provide the Owner with evidence of the payment of any and all necessary permits, licenses, and other requirements (as outlined in the preceding paragraph). All such evidence shall be submitted with each Application for Payment.

1.06 SEQUENCE OF OPERATIONS

A. The Contractor shall submit for approval the complete sequence of operations for demolition and show how it is coordinated with all other aspects of the job. Work shall not begin until such a schedule has been approved by the Owner.

B. The Contractor shall include with his sequence schedule a description of all procedures and equipment to be utilized to perform the demolition work.

1.07 ASBESTOS

A. ACM samples have been extracted from the existing roof areas Please see ACM results and ECM Report as part of the Project Manual. It is the Roofing Contractor's responsibility to observe demolition and notify the Tremco Representative of the possible presence of any ACM material. If additional ACM is present, it is the contractor's responsibility to properly handle and dispose of the ACM in accordance with Local, State and Federal regulations.

B. The Roofing Contractor is responsible for completing all roof removal/disposal activities, including asbestos-containing materials removal, in complete/full-compliance with all applicable rules and regulations. The Contractor will engage the appropriate technical resources and/or outside entities to assess and

handle/manage the removal/disposal of any hazardous material. The responsibility to secure notifications, procure permits, obtain licenses and other related, regulatory requirements shall be the sole responsibility of the Contractor.

C. If the Contractor (or a Subcontractor) disturbs, removes disposes, or encapsulates any hazardous material in a manner not in accordance with all required regulations/procedures, the Contractor shall indemnify, defend, and hold harmless the Owner, against any loss, damage, or liability arising, or resulting from, such unauthorized improper acts of the Contractor and/or Subcontractor; and further, the Owner, and any designated Consultants, Specifiers, Engineers and/or Project Managers shall be indemnified from for any such loss, damage or liability arising, or resulting from the Contractor's and/or Subcontractor's acts.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Notify the Owner, a minimum of forty-eight (48) hours in-advance, of the need to provide dumpsters/dump-trailers for the disposal of job-related demolition materials. Advance coordination with the Owner is the Roofing Contractor's responsibility. Remove all dumpster/dump-trailers when full.

PART 3 - EXECUTION

3.01 PROTECTION

A. Before starting demolition, the Contractor shall be solely-responsible for making all necessary arrangements and for performing any necessary measures required to ensure the complete-safety of all building-occupants, the public, onsite personnel, associated trades-people and the Contractor's workforce.

B. Adequate protection of persons and property shall be provided at all times. The work shall be executed in a manner to avoid interference with the use of adjacent buildings, areas or properties, and to avoid interruption of free passage to or from such buildings, areas or properties, except as agreed-to in-advance with the Owner.

C. Investigate and comply with any/all rules, regulations, guidelines and other safety provisions required by the Owner. All personnel are to fully-comply with any Owner-mandated and/or OSHA-mandated, personal-protection guidelines through the course of the Work.

D. Furnish signs, lights, protective-staging, barricades and other equipment as may be necessary for the safe execution of the work.

E. If necessary for the safe execution of the work, provide ground-based personnel to direct pedestrian and vehicle traffic away from areas presenting a particular hazard.

3.02 POLLUTION CONTROL

A. The Contractor shall be aware that portions of these facilities will be in active use and open to the public throughout the course of construction and that any disruption or inconvenience sustained by the Owner (or others) must be kept to a reasonable minimum. The Contractor shall select equipment and procedures to mitigate noise, airborne dust and other forms of discomfort.

B. All demolished materials shall be delivered into dumpsters/dump-trailers (supplied by the Roofing Contractor) in a safe, neat and controlled fashion. No debris shall be 'thrown' or 'tossed' from the various roof surfaces. Deliver all debris into dumpsters/dump-trailers in a controlled and precise fashion.

C. The Contractor shall supply all necessary protection at building perimeters to accommodate the delivery of debris into dumpsters or dump-trailers. All tarps, staging and other means of protection are the sole responsibility of the Contractor.

D. The Contractor shall, at all times, keep debris from migrating to adjacent portions of the property. All debris shall be properly-secured from high winds (at all times) to limit the spread of debris onto adjacent property, vehicles, streets, parking-areas and/or other restricted areas. If the control of debris cannot be properly-handled, the Owner reserves the right to stop the work (without compensation to the Contractor) until the Contractor is able to properly-control the existing conditions.

3.03 ON-SITE STORAGE & STAGING-AREAS

A. The Owner is able to provide limited quantities of ground-level areas for the storage of materials and project-staging areas. All ground-based access and staging-areas are to be organized and arranged-for by the Roofing Contractor, through the Town, with prior-approval and coordination with the Owner.

B. The Owner reserves the right to limit/restrict various staging/storage areas, if it's believed to represent a hardship or substantial inconvenience to the Owner's operations.

C. A central dumpster location will be designated by the Owner for use for the duration of the project. It will be expected that all demolition and construction debris will be cleaned up daily and brought to the central dumpster location.

3.04 REPAIR OF DAMAGES

A. The Roofing Contractor shall be responsible for conducting a careful inspection of the building exterior prior to the commencement of the work. All damaged, stained or deteriorated elements of the building shall be documented and submitted to the Owner prior to the start of the work. Any damaged or deteriorated elements of the building (or adjacent sidewalks and/or staging/storage areas) identified after the completion of the work and not found to be included on the original documentation will become the responsibility of the Roofing Contractor. All repairs and/or replacement of such damage will be conducted (at no additional expense to the Owner) to the satisfaction of the Owner. Failure on the part of the Contractor to perform this pre-inspection, documentation leaves the Contractor vulnerable to the repair of damages, not-caused through the course of the project.

B. Damage to any portion of the building which results in the disruption-of, or inconvenience-to the Owner or his employees shall be immediately repaired or replaced by the Contractor. If such restitution is not promptly made, the Owner shall have the necessary work performed by an outside entity at the Contractor's expense.

3.05 CLEAN-UP

A. The building and adjacent areas (including landscaping, sidewalks and staging/storage areas) shall be left in a broom-clean condition at the end of each day. All dumpsters or dump trailers shall be covered at the end of each day to prevent the migration of debris through high-winds.

B. On completion of the work of this section and after removal of all debris, the site shall be left in a clean condition satisfactory to the Owner.

END OF SECTION

SECTION 061000 ROUGH & FINISH CARPENTRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The work of this Section consists of furnishing and installing all rough carpentry, finish carpentry, and related items as depicted on the drawings and/or specified herein, or such materials required to successfully-complete the required work.
- B. All materials shall be verified by the Contractor to be proper for each intended use, and the entire work of this Section shall be done in such a manner that each installation will perform its intended purpose as applicable, in the finished work.
- C. Provide all wood blocking, nailers and/or plywood, as specified herein and indicated on drawings, or as otherwise might be required, for the proper installation of the new roofing, siding, gutters and downspouts and related work.
- D. Provide all building wrap underlayment, 1x pressure treated trim boards for fascia at new gutters, and standing and running trim as specified herein and indicated on drawings, or as otherwise might be required, for the proper installation of the new roofing, gutters and downspouts and related work.
- E. Removal and legal disposal of selective portions of any damaged roof sheathing or wood blocking encountered during demolition, and replacement to match existing materials shall be by Unit Cost as noted in the Bid Form.
- F. The drawings indicate and show limits of construction for this project. The specifications specify materials and work requirements for this project. Both are complementary to each other and both shall be followed to complete the work.

1.02 RELATED WORK UNDER OTHER SECTIONS

- A. Carefully examine all of the Project Documents for requirements that affect the work of this Section. The exact scope of work of this Section cannot be fully determined without a thorough review of all specification sections and other Project Documents. The Project Manual/Bid Form and General Notes to the Bidding Contractors apply to the work of this section.
 - 1. Related Sections (include but are not limited to the following):
 - a. Section 020500 - Selective Demolition
 - b. Section 070150 – Rehabilitation of Single Ply Roofing
 - c. Section 073110 - Asphalt Shingles

- d. Section 074113 – Metal Standing Seam Roof Panels, Ventilated
- e. Section 077100 – Gutters, Downspouts and Snow Guards

1.03 DELIVERY AND STORAGE

- A. All materials when delivered to site shall be stacked and stored above the ground under protective coverings in such a manner as to insure proper drainage, ventilation, and protection from the weather.
- B. Store all materials in areas designated as acceptable to the Owner. The contractor shall be fully responsible for all materials stored on site, and shall take appropriate measures to protect stored materials from damage and theft.

1.04 SUBMITTALS

- A. Submit the following data:
 - 1. Manufacturer's or applicator's specification for wood preservative treatment and treatment procedure to be sure that a satisfactory treatment will be obtained.
 - 2. Manufacturer's specification data sheets for all fasteners to be used, clearly identifying such as their intended use.
 - 3. Samples of all clapboards and standing and running trim, including back priming and finishing to exhibit match to existing.

PART 2 - PRODUCTS

2.01 DIMENSIONAL AND FINISH LUMBER

- A. All blocking and framing materials shall be of sound, new, straight, and consistent sized stock, free of stains and mildew. All exposed or semi-exposed wood members shall be selected for their best possible appearance from the grade and stock specified.
- B. All blocking and framing materials shall be surfaced on four (4) sides and shall bear the grade and trademark of the association under whose rules it is produced and a mark of mill identification. All materials shall be construction grade Douglas Fir, Hem-Fir, West Coast Hemlock, West Coast Fir, or Southern Yellow Pine.

- C. Blocking shall be furnished in the longest practicable length with respect to each intended use - at least ten (10) feet unless shorter lengths are required. Single length pieces shall be used whenever possible.
- D. All new wood blocking shall be pressure-treated with waterborne salt preservatives that will have no deteriorating effects on the proposed roofing materials. The treatment shall be 0.40 lbs. per cubic foot of retention. The treatment shall leave a noticeable tint to the wood so that the treated wood can be visually differentiated from all untreated wood. No oil-based pentachlorophenol or creosote treatments will be permitted.

2.02 PLYWOOD

- A. All roof sheathing for replacement areas shall be minimum exterior grade of Group 1 or 2 species, Type CDX or better, unless otherwise noted. All plywood shall have an APA stamp on it and shall meet the requirements of Product Standard PS 1-83 for Construction and Industrial Plywood.
 - 1. 5/8" thick for general uses at roof sheathing.
 - 2. Refer to Unit Costs in Bid Form for related work.

2.03 FASTENERS

- A. All roof sheathing for replacement areas shall be minimum 5/8" plywood sheathing w/ 8d nails at 6" o.c. at edges and 6" o.c. in field unless otherwise noted. Roof sheathing within 4' of eaves or gable ends to be fastened with 8d nails at 4" o.c. at edges and 6" o.c. in field.
- B. All fasteners must be certified to be compatible with all pressure treated materials found on the project.
- C. Powder-actuated type fasteners ARE NOT to be used to fasten plywood and/or wood blocking.

PART 3 - EXECUTION

3.01 GENERAL

- A. Construct all indicated rough carpentry work plumb, level, and true with tight and close-fitting joints. All carpentry work shall be executed in a first-class workmanship manner and shall be securely attached and/or braced to the surrounding construction.
- B. New wood blocking shall be installed to the same thickness as the insulation to the maximum extent possible, within 1/16" plus or minus. New wood blocking shall be a minimum of four (4") inches in width (nominal) unless detailed otherwise.
- C. New 1 x (nominal) pressure treated trim board for gutter replacement areas shall be sized to match height of existing wood gutter to be removed, and shall be fastened securely to the existing structural rafters and related soffit framing prior to the installation of new gutters.

3.02 FASTENING - GENERAL

- A. All wood blocking shall be fastened in compliance with the guidelines set-forth in the latest FM Global (Factory Mutual) publications.
- B. The fasteners used for wood blocking at the perimeters shall be staggered and spaced twelve (12) inches on center. The staggered fastening pattern shall be increased within eight (8) feet from outside corners to six (6) inches on center. Smaller pieces of wood blocking such as at penetrations, shall have a minimum of four (4) fasteners per piece. A fastener shall be located no more than four (4) inches from the end of each piece of wood blocking.
- C. Counter bore the wood blocking at all bolt heads, nuts, and washers as/if required to provide a flush surface for the installation of new roofing materials.
- D. When plywood sheathing is installed as an underlayment for flashing membranes, it shall be securely fastened at the top, the middle, and the bottom with approved fasteners spaced eighteen (18) inches on center. When plywood is used in layers, each layer of plywood shall be secured equally, with the fastener spacing as specified previously herein.

END OF SECTION 061000

SECTION 070150 REHABILITATION OF SINGLE PLY ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Roof membrane coating preparation.
2. Application of reinforced fluid-applied roof membrane and flashings over existing fully adhered EPDM membrane roof.

1.2 ROOFING CONFERENCES

A. Roofing Rehabilitation Preinstallation Conference: Conduct conference at Project site to review methods and procedures related to roofing system.

1. Meet with Owner; Architect; roofing coating materials manufacturer's representative; roofing rehabilitation Installer including project manager and foreman; and installers whose work interfaces with or affects rehabilitation including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
2. Review temporary protection requirements for existing roofing system that is to remain uncoated, during and after installation.
3. Review methods and procedures related to re-coating preparation, including coating manufacturer's written instructions.
4. Review roof drainage during each stage of coating and review roof drain plugging and plug removal procedures.
5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
6. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect coating.
7. Review HVAC shutdown and sealing of air intakes.
8. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
9. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.

10. Review governing regulations and requirements for insurance and certificates if applicable.
11. Review existing conditions that may require notification of Owner before proceeding.

1.3 MATERIALS OWNERSHIP

- A. Demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" for definition of terms related to roofing work in this Section.
- B. Roofing Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.
- C. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.
- D. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- E. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product specified.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
 1. Provide manufacturer's UL listing certificate for roofing system.

- B. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing rehabilitation system.
- C. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
 - 1. Letter written for this Project indicating manufacturer approval of Installer to apply specified products and provide specified warranty.
- D. Warranties: Unexecuted sample copies of special warranties.
- E. Photographs or Video Recordings: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, which might be misconstrued as having been damaged by rehabilitation operations. Submit before Work begins.
- F. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, and for dust control. Indicate proposed locations and construction of barriers.
- G. Inspection Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.
 - 1. Submit report within 48 hours after inspection.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: To include in maintenance manuals.
- B. Warranties: Executed copies of approved warranty forms.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of three years' experience installing products similar to those specified, able to communicate verbally with Contractor, Architect, and employees, and the following:

1. Qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Primary product manufacturer that is UL listed for roofing system identical to that specified for this Project with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.
- C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 1. An authorized full-time technical employee of the manufacturer.
 2. An independent party certified as a Registered Roof Observer by the International Institute of Building Enclosure Consultants (formerly the Roof Consultants Institute) retained by the Contractor or the Manufacturer and approved by the Manufacturer.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with rehabilitation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
 1. Store all materials prior to application at temperatures recommended by manufacturer.
 2. Apply coatings within range of ambient and substrate temperatures recommended by manufacturer.
 3. Do not apply roofing in snow, rain, fog, or mist.
- B. Protect building to be rehabilitated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from rehabilitation operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

- E. Owner will occupy portions of building immediately below re-coating area. Conduct re-coating so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

1.10 WARRANTY

- A. Manufacturer's Warranty: In which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.
 - 1. Form of Warranty: Tremco "Plain and Simple" warranty form.
 - 2. Scope of Warranty: Work of this Section.
 - 3. Warranty Period: 30 years from date of completion.
 - 4. Inspections by Manufacturer: To occur every five years following completion.
- B. Installer Warranty: Installer's warranty signed by Installer, as follows.
 - 1. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.
 - 2. Scope of Warranty: Work of this Section.
 - 3. Warranty Period: 2 years from date of completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: The roof system specified in this Section is based upon products of Tremco CPG Inc, Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Provide specified products or comparable products of one of the following.
 - 1. a. Sika Corp. Sikalastic RoofPro 641 Low-VOC System.
 - 2. b. Kemper Systems, Inc. Kemperol 2K-PUR System.
- B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Rehabilitated roofing shall withstand exposure to weather without failure or leaks due to defective manufacture or installation.
 - 1. Accelerated Weathering: Roofing system shall withstand 5000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Exterior Fire-Test Exposure: Roofing system exterior fire-test exposure performance following application of rehabilitation coating shall be not be less than that of the pre-rehabilitated roof performance when tested in accordance with ASTM E108, based upon manufacturer's tests of identical applications.

2.3 MATERIALS, GENERAL

- A. General: Rehabilitation materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.
- B. Infill Materials: Where required to replace test cores and to patch existing roofing, use infill materials matching existing membrane roofing system materials, unless otherwise indicated.
- C. Temporary Roof Drainage: Design and selection of materials for temporary roof drainage are responsibilities of the Contractor.

2.4 FLUID-APPLIED ROOFING MEMBRANE COATING

- A. Polyurethane Elastomeric Fluid-Applied System: Two-coat fluid-applied roofing membrane formulated for application over prepared existing roofing substrate.
 - 1. Polyurethane Roof Coating System Base Coat: Single-part moisture-curing, for use with a compatible top coat.
 - a. Basis of design product: Tremco, AlphaGuard MTS Base Coat.

- b. Combustion Characteristics, UL790: Maintains combustion characteristics of existing roof system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 42 g/L.
 - d. Accelerated Weathering, 5000 hours, ASTM G154: Pass.
 - e. Hardness, Shore A, minimum, ASTM D2240: 85.
 - f. Solids, by volume, ASTM D2697, minimum: 87 percent.
 - g. Minimum Thickness, Base Coat on Smooth Surface: 48 mils (1.22 mm) wet.
- 2. Polyurethane roof coating system top coat, low odor low VOC single-part, for application over compatible base coat.
 - a. Basis of design product: Tremco, AlphaGuard MTS Top Coat.
 - b. Combustion Characteristics, UL790: Maintains combustion characteristics of existing roof system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 44 g/L.
 - d. Solar Reflectance Index (SRI), ASTM E1980: For white, not less than 108.
 - e. Accelerated Weathering, 5000 hours, ASTM G154: Pass.
 - f. Hardness, Shore A, minimum, ASTM D2240: 85.
 - g. Solids, by volume, ASTM D2697: 87.
 - h. Minimum Thickness: 48 mils (1.22 mm) wet over cured base coat.
 - i. Minimum Thickness, Slip-Resistant Coat: 20 mils (0.50 mm) wet.
 - j. Color: White.

B. Primers:

- 1. Primer for Asphaltic and Single-Ply Membranes: Water-based, polymer-modified quick-dry low odor primer.
 - a. Basis of design product: Tremco, AlphaGuard WB Primer.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 1 g/L.

- c. Solids, by weight: 70 percent.
 - 2. Primer for Masonry Surfaces: Two-part high-solids epoxy-penetrating low-odor primer for masonry and concrete surfaces.
 - a. Basis of design product: Tremco, AlphaGuard C-Prime.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.
 - c. Solids, by weight: 100 percent.
 - 3. Primer for Non-Porous Surfaces: Single-part, water based primer to promote adhesion of urethanes to metals, PVC and other non-porous surfaces.
 - a. Basis of design product: Tremco, AlphaGuard M-Prime.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 22 g/L.
 - c. Nonvolatile Content, minimum, ASTM D2369: 5 percent.
 - d. Density at 77 deg F (25 deg C): 8.3 lbf/gal (1kg/L).
 - 4. Primer for Intercoat and Substrate Adhesion: Single-part, quick-drying primer to promote adhesion of urethane products to previous urethane coats and to other approved surfaces.
 - a. Basis of design product: Tremco, Geogard Primer.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 100 g/L.
 - c. Coverage Rate, 400 sq. ft/ gal. (10 m²/ L): 4 mils (0.10 mm) wet.
- C. Fluid-Applied Roofing Reinforcing Fabric:
- 1. Polyester Reinforcing and Protection Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings and as a protection layer under pavers or stone aggregates.
 - a. Basis of design product: Tremco, Permafab.
 - b. Tensile Strength, Minimum, ASTM D1682: 50 lbf (23 kg) avg..
 - c. Elongation, Minimum, ASTM D1682: 60 percent.

- d. Tear Strength, Minimum, ASTM D1117: 16 lbf (7.3 kg) avg..
- e. Weight: 3 oz./sq. yd (102 g/sq. m).

2.5 AUXILIARY ROOFING REHABILITATION MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and roofing coating system.
- B. Seam Sealer: Waterproof seam and patching material compatible with applied coating.
 - 1. Seam Sealer: Aromatic polyurethane sealer, single-component, high solids, moisture curing, formulated for compatibility and use with a variety of roofing and flashing substrates.
 - a. Basis of design product: Tremco, GEOGARD Seam Sealer.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 189 g/L.
 - c. Tensile Strength, ASTM D412: 270 psi (1860 kPa).
 - d. Tear Strength, ASTM D412: 35 pli (6.13 kNm).
 - e. Elongation, ASTM D412: 220 percent.
 - f. Color: Gray.
- C. Joint Sealant: Elastomeric joint sealant compatible with applied coating, with movement capability appropriate for application.
 - 1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.
 - a. Basis of design product: Tremco, TremSEAL Pro.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.
 - c. Hardness, Shore A, ASTM C661: 40.
 - d. Adhesion to Concrete, ASTM C794: 35 pli.
 - e. Tensile Strength, ASTM D412: 350 psi (2410 kPa).

- f. Color: Closest match to substrate.

- D. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.6 WALKWAYS

- A. Slip Resistant Product for Fluid-Applied Walkways:

- 1. Aggregate, Slip Resistant Silica Sand: Silica sand, broadcast into fluid-applied roof coating products for use as aggregate fill for slip-resistant, abrasion-resistant coating applications.
 - a. Basis of design product: Aggregate, Slip Resistant Silica Sand.
 - b. Size: 20 - 40 mesh.
 - c. Application Rate: Minimum 20 - 30 lb/100 sq ft (1 - 1.5 k/m²).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing roofing substrates, with Installer present, for compliance with requirements and for other conditions affecting application and performance of roof coatings
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
 - 2. Verify compatibility with and suitability of substrates.
 - 3. Verify that substrates are visibly dry and free of moisture.
 - 4. Verify that roofing membrane surfaces have adequately aged to enable proper bond with base coat.
 - 5. Verify that roofing membrane is free of blisters, splits, open laps, indications of shrinkage, and puncture damage or other indications of impending roof system failure.
 - 6. Commencing application of coatings indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Protect existing roofing system that is indicated not to be rehabilitated, and adjacent portions of building and building equipment.
 - 1. Mask surfaces to be protected. Seal joints subject to infiltration by coating materials.
 - 2. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
 - 3. Maintain temporary protection and leave in place until replacement roofing has been completed.
- B. Shut down air intake equipment in the vicinity of the Work in coordination with the Owner. Cover air intake louvers before proceeding with coating work that could affect indoor air quality or activate smoke detectors in the ductwork.
 - 1. Verify that rooftop utilities and service piping affected by the Work have been shut off before commencing Work.
- C. 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 forecast.
 - 1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

3.3 ROOFING COATING PREPARATION

- A. Roofing Partial Tear-off and Patching: Refer to requirements of Division 07 Section "Preparation for Re-roofing."
- B. Removal of Wet Insulation: Remove portions of roofing membrane with underlying wet insulation. Remove wet insulation, fill in tear-off areas to match existing insulation and membrane, and prepare patched membrane for application of roof coating as specified below.
- C. Repair of Ponding Areas: Repair areas indicated as ponding areas or areas of inadequate drainage by removing roof membrane, adding additional insulation as required to provide minimum slopes to drain required by roofing rehabilitation coating manufacturer, and replace membrane with material matching existing. Submit photographic report indicating compliance.

D. Membrane Surface Preparation:

1. Remove walkway pads and pavers from roofing membrane. Discard damaged pavers.
2. Remove blisters, ridges, buckles, roofing membrane fastener buttons projecting above the membrane, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
3. Broom clean existing substrate.
4. Substrate Cleaning: Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 2,000 psi (13,800 kPa).
 - a. Dispose of waste water in accordance with requirements of authorities having jurisdiction.
5. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.
6. Verify adhesion of new products.

E. Existing Flashing and Detail Preparation: Repair flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, replace loose or missing fasteners, and replace components where required to leave in a watertight condition.

1. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings as detailed of same metal, weight or thickness, and finish.

F. Surface Priming: Prime surfaces to receive fluid-applied coating using coating manufacturer's recommended product for surface material. Apply at application rate recommended by manufacturer.

1. Ensure primer does not puddle and substrate has complete coverage.
2. Allow to cure completely prior to application of coating.

3.4 FLUID-APPLIED FLASHING APPLICATION

A. Fluid-Applied Flashing and Detail Base Coat Application: Complete base coat and fabric reinforcement at parapets, curbs, penetrations, and drains prior to application of field of fluid-applied membrane. Apply base coat in accordance with manufacturer's written instructions.

1. Apply base coat on prepared and primed surfaces and spread coating evenly. Extend coating minimum of 8 inches (200 mm) up vertical surfaces and 4 inches (100 mm) onto horizontal surfaces.
2. Back roll to achieve minimum coating thickness indicated on Part 2 product listing, unless greater thickness is recommended by manufacturer; verify thickness of base coat as work progresses.
3. Reinforcing Fabric: Embed fabric reinforcement into wet base coat. Lap adjacent flashing pieces of fabric minimum 3 inches (75 mm) along edges and 6 inches (150 mm) at end laps.
 - a. Roll surface of fabric reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.

3.5 FLUID-APPLIED MEMBRANE APPLICATION

- A. Fluid-Applied Membrane Base Coat: Apply base coat to field of membrane in accordance with manufacturer's written instructions.
 1. Apply base coat on prepared and primed surfaces and spread coating evenly.
 2. Back roll to achieve minimum coating thickness indicated on Part 2 product listing, unless greater thickness is recommended by manufacturer; verify thickness of base coat as work progresses.
 3. Fabric Reinforcement: Embed fabric reinforcement into wet base coat. Lap adjacent pieces of fabric minimum 3 inches (75 mm) along edges and 6 inches (150 mm) at end laps.
 - a. Roll surface of fabric reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
- B. Fluid-Applied Membrane Top Coat: Apply top coat to field of membrane and flashings uniformly in a complete, continuous installation.
 1. Allow base coat to cure prior to application of top coat.
 2. Following curing of base coat and prior to application of top coat, sand raised or exposed edges of fabric reinforcement.
 3. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.

4. Apply top coat extending coating up vertical surfaces and out onto horizontal surfaces. Install top coat over field base coat and spread coating evenly.
5. Back roll to achieve minimum coating thickness indicated on Part 2 product listing, unless greater thickness is recommended by manufacturer; verify thickness of base coat as work progresses.
6. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

3.6 WALKWAY INSTALLATION

- A. Install walkways following application of coating. Locate as indicated, or as directed by Owner.
- B. Slip-Resistant Walkway Topcoat: Apply walkway second topcoat following application and curing of top coat. Locate as indicated on Drawings.
 1. Mask walkway location with tape.
 2. Prime first top coat prior to application of walkway top coat if walkway top coat is not applied within 72 hours of the first top coat application, using manufacturer's recommended primer.
 3. Apply walkway topcoat and back roll to achieve minimum coating thickness indicated on Part 2 product listing, unless greater thickness is recommended by manufacturer; verify thickness of base coat as work progresses.
 4. Broadcast Slip-Resistant Top Coat Aggregate in wet top coat at rate indicated in Part 2 product listing or as otherwise recommended by coating manufacturer.
 - a. Back roll aggregate and top coat creating even dispersal of aggregate. Remove masking immediately.

3.7 FIELD QUALITY CONTROL

- A. Roofing Inspector: Owner will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
- B. Roofing Inspector: Contractor shall engage a qualified roofing inspector for a minimum of 2 full-time days on site, per 40-hour crew week, to perform roof tests and inspections and to prepare start up, interim, and final reports. Roofing Inspector's quality assurance inspections shall comply with criteria established in Quality Control and Quality-assurance Guidelines for the Application of Membrane Roof Systems."

- C. Roof Inspection: Contractor shall engage roofing system manufacturer's technical personnel to inspect roofing installation, and submit report. Notify Architect 48 hours in advance of dates and times of inspections. Inspect work as follows:
 - 1. Upon completion of preparation of first component of work, prior to application of re-coating materials.
 - 2. Following application of re-coating to flashings and application of base coat to field of roof.
 - 3. Upon completion of re-coating but prior to re-installation of other roofing components.
- D. Repair fluid-applied membrane where test inspections indicate that they do not comply with specified requirements.
- E. Arrange for additional inspections, at Contractor's expense, to verify compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 070150

SECTION 070150.19 – PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof replacement preparation consisting of full roof tear-off of entire roof system.
2. Roof replacement preparation consisting of partial roof tear-off of roof system at designated roof areas.
3. Removal of flashings and counterflashings.

B. Related Information:

1. Division 00 Document "Existing Condition Information" for related Project information not part of the Contract Documents.
 - a. A Moisture Survey dated 11/1/2021 provides extents of wet insulation for Base Bid quantities. An updated moisture survey is required for Manufacturers Warranty and revised wet insulation quantities. Additional wet insulation will be replaced at the Unit Cost price provided in the Bid Documents.
2. Division 01 Section "Summary" for use of the premises and phasing requirements, and for restrictions on use of the premises due to Owner or tenant occupancy.
3. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental protection measures.
4. Division 01 Section "Construction Waste Management and Disposal" for disposal, salvaging, and recycling of demolition and construction waste and submittal of Waste Management Plan.
5. Division 02 Section "Selective Demolition" for selective demolition work not directly related to re-roofing work.
6. Division 07 Section "Roof Specialties" for manufactured roof edge/fascia systems.
7. Division 22 Section "Roof Drains" for new or replacement roof drains.
8. Division 23 Sections for HVAC equipment removal and reinstallation.

9. Division 26 Sections for electrical equipment disconnection and reconnection.

- C. Alternates: Refer to Division 01 Section "Alternates" for description of Work in this Section affected by alternates.
- D. Unit Prices: Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.2 DESCRIPTION OF WORK

A. Re-roofing preparation Work consists of the following:

1. Preparation for Roof Area (Base Bid):

- a. Preparation for: Roof replacement.
- b. Existing Roof Type: Adhered EPDM.
- c. Existing Deck Type: Metal deck.
- d. Partial roof tear-off. Removal of existing EPDM membrane and related flashings to expose existing wet polyisocyanurate thermal insulation to remain.
- e. Removal and reinstallation of wet insulation, deteriorated steel deck, indicated components, accessories, and equipment as noted.
- f. Uplift securement.

1.3 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and glossary in applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" for definition of terms related to roofing work in this Section.

- B. Existing Roofing System: Roofing system identified above, including roof covering/membrane, roof insulation, surfacing, and components and accessories between deck and roof covering/membrane.
- C. Full Roof Tear-Off: Removal of existing membrane roofing system from deck.
- D. Partial Roof Tear-Off: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system.
- E. Roof Re-Cover Preparation: Existing roofing that is to remain and be prepared for installation of new roofing system over existing system.
- F. Roof Rehabilitation Preparation: Existing roofing membrane that is to remain and be prepared for rehabilitation.
- G. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- H. Existing to Remain: Existing items of construction that are not indicated to be removed.
- I. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- J. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- K. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- L. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- M. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- N. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.5 PREINSTALLATION MEETINGS

- A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.
 - 1. Coordinate with roofing preinstallation meetings specified in Division 07 roofing section(s).
 - 2. Review methods and procedures related to roofing tear-off, 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 to remain.
 - 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 Owner's Consultant notification.
 - 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. Governing regulations and requirements for insurance and certificates if applicable.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer for refrigerant recovery technician.
- B. Field Test Reports:
 - 1. Fastener pull-out test report.
- C. Digital Images or Videos: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, which might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.
- D. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property for environmental protection and for dust control. Indicate proposed locations and construction of barriers.
- E. Schedule of Re-Roofing Preparation Activities: Indicate the following:
 - 1. Detailed sequence of re-roofing preparation work, with starting and ending dates for each activity. Ensure occupants' on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Coordination of Owner's continuing occupancy of portions of existing building.
- F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.8 CLOSEOUT SUBMITTALS

- A. Certified statement from manufacturer of existing warranted roof system stating that existing roof warranty has not been affected by Work performed under this Section.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Installer of new membrane roofing system.
- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.10 PROJECT / FIELD CONDITIONS

- A. Owner will occupy portions of building immediately below reroofing area.
 - 1. Conduct reroofing so Owner's operations will not be disrupted.
 - 2. Provide Owner with not less than 48 hours' written notice of activities that may affect Owner's operations.
 - 3. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area.
 - 4. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area.
 - a. Verify that occupants below the work area have been evacuated before proceeding with work over the impaired deck area.
- B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Limit construction loads on roof to rooftop equipment wheel loads and uniformly distributed loads not exceeding recommendations of Contractor's professional engineer based upon site inspection and analysis.
- E. 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.

- F. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
- G. Hazardous Materials: It is expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner's Consultant and Owner.
 - a. Obtain direction from Owner's Consultant before proceeding with work in the affected area.

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

- A. EPS Insulation: Molded (expanded) polystyrene, ASTM C578.
- B. Plywood: NIST DOC PS 1, Grade CD, Exposure 1.
- C. Oriented Strand Board (OSB): NIST DOC PS 2, Exposure 1.

2.2 DECK REPAIR/REPLACEMENT MATERIALS

- A. Metal Deck Repair Materials: Specified in Division 05 Section "Metal Decking."
 - 1. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:
 - a. Gage, rib depth, rib configuration to match existing; three span; lapped and stitched joints.
 - b. Sheet Steel: ASTM A653/A653M, Grade A structural quality; with G90 coating (galvanized).
 - 2. Fasteners:

- a. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
 - b. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 (4.8 mm) minimum diameter.
3. Accessories: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

2.3 ROOFING INFILL, PATCHING AND REPLACEMENT MATERIALS

- A. Use roofing infill materials matching existing membrane roofing system materials unless otherwise indicated.
- B. Wood Blocking, Curbs, Cants and Nailers: Specified in Division 06 Section "Miscellaneous Rough Carpentry."
 1. Reuse existing wood components that exhibit no signs of deterioration or other conditions detrimental to securement of new roofing system in conformance with specified requirements.
- C. Fasteners: Factory-coated steel fasteners with metal or plastic plates listed in FM Approvals' RoofNav, and acceptable to new roofing system manufacturer.

2.4 TEMPORARY ROOFING MATERIALS

- A. Design and selection of materials for temporary roofing are responsibilities of Contractor.

2.5 TEMPORARY ROOF DRAINAGE

- A. Design and selection of materials for temporary roof drainage are responsibilities of the Contractor.

PART 3 - EXECUTION

3.1 PREPARATION, GENERAL

- A. Protection of In-Place Conditions: Protect existing roofing system that is indicated not to be reroofed.
 - 1. Loosely lay 1-inch- (25-mm-) minimum thick, molded expanded polystyrene (EPS) insulation over the roofing membrane in areas indicated.
 - a. Loosely lay 15/32-inch (12-mm) plywood or OSB panels over EPS. Extend EPS past edges of plywood or OSB panels a minimum of 1 inch (25 mm).
 - 2. Limit traffic and material storage to areas of existing roofing membrane 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.
 - 4. Comply with requirements of existing roof system manufacturer's warranty requirements.
- B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.
- C. Shut off rooftop utilities and service piping before beginning the Work.
- D. Test existing roof drains to verify that they are not blocked or restricted.
 - 1. Immediately notify Owner's Consultant of any blockages or restrictions.
- E. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
 - 1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- F. Pollution Control: Comply with environmental regulations of authorities having jurisdiction. Limit spread of dust and debris.

1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 2. Remove debris from building roof by chute, hoist, or other device that will convey debris to grade level.
- G. Refrigerant: Before starting re-roofing preparation, remove refrigerant from mechanical equipment to be removed and reinstalled, according to 40 CFR 82 and regulations of authorities having jurisdiction.
- H. Temporary Weather Protection: During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- I. Roof Drain Protection: Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.
1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.
 2. Prevent debris from entering or blocking roof drains and conductors.
 - a. Use roof-drain plugs specifically designed for this purpose.
 - b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
 3. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding.
 - a. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

3.2 ROOF TEAR-OFF

- A. Notify Owner each day of extent of roof tear-off proposed for that day and obtain authorization to proceed.

- B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.
- C. Remove aggregate ballast from roofing membrane.
- D. Remove pavers and accessories from roofing membrane.
- E. Roof Drainage: Remove roof drainage items indicated for removal.
- F. Roof Tear-Off: Remove existing roofing membrane and other membrane roofing system components down to the deck.
 - 1. Remove roof insulation where indicated.
- G. Partial Roof Tear-Off: Remove existing roofing membrane and immediately check for presence of moisture by visually observing roof insulation that will remain.
 - 1. Coordinate with Owner's inspector to schedule times for tests and inspections immediately after membrane removal.
 - 2. Survey exposed substrate that is to remain using electrical capacitance/impedance testing according to ASTM D7954/D7954M.
 - a. Prepare survey report of initial scan indicating locations of entrapped moisture, if any, and area calculations of locations of entrapped moisture.
 - 3. Remove wet or damp boards and roof insulation. Removal will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.
- H. Roof Edge Specialties: Reuse existing perimeter metal systems, except where indicated otherwise; refasten and repair existing fascia and coping covers to remain.
 - 1. New perimeter metal systems (fascia and coping) are specified in Division 07 Section "Roof Specialties."
- I. Inspect wood blocking, curbs, and nailers for deterioration and damage.

1. Replace existing wood components that exhibit signs of deterioration or other conditions detrimental to securement of roofing system components, including roof edge flashings.
2. Reuse of Existing Wood Nailers: Permitted where type, size and securement are in accordance with Factory Mutual Loss Prevention Data Bulletin 1-49; and existing wood nailers exhibit no signs of deterioration or other conditions detrimental to securement of new roofing system in conformance with specified requirements.

3.3 DECK PREPARATION

- A. Inspect deck after tear-off of membrane roofing system.
- B. Verify that deck is sound and dry.
- C. 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 Owner's Consultant. Do not proceed with installation until directed by Owner's Consultant.
- D. Unsuitable Deck: If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Owner's Consultant. Do not proceed with installation until directed by Owner's Consultant.

3.4 DECK REPAIR/REPLACEMENT

- A. Repair existing deck to provide smooth working surface for installation of roof system.
 1. Replace deck that cannot be repaired to sound condition.
- B. Metal Deck Reattachment:
 1. Mechanically reattach loose sections of deck to steel support members 12 inches (300 mm) on center (at every other rib) and 6 inches (150 mm) on center (at every rib) in roof corner and roof perimeter areas.
 2. Side Laps: Mechanically fasten 18 inches (450 mm) on center.
 3. Mechanically fasten steel deck to supporting member at each deck side lap, regardless of spacing.
 4. Overlap steel deck end laps minimum 2 inches (50 mm); mechanically attach at the above listed factors.

C. Metal Deck Replacement:

1. Remove defective metal decking and examine supports; if supports are unsound, notify Owner's Consultant and obtain direction before proceeding with deck replacement.
2. Install deck as specified in Division 05 Section "Steel Decking."

3.5 ROOFING INFILL, PATCHING AND REPLACEMENT MATERIALS INSTALLATION

- A. Immediately after removal of selected portions of existing membrane roofing system, and inspection and repair, if needed, of deck, fill in the tear-off areas to match existing membrane roofing system construction.

3.6 EQUIPMENT REMOVAL AND REINSTALLATION

- A. General: Remove, store, protect and reinstall rooftop equipment as required to accommodate roof tear-off and subsequent roofing work.

1. Raise roof curbs, equipment mountings and other roof penetration flashings as required to accommodate additional insulation thickness and maintain base flashing height of not less than 8 inches (200 mm), unless otherwise indicated.
 - a. Provide wood assemblies and additional support with miscellaneous galvanized steel angles, as required to rebuild or raise existing roof curbs.
 - b. Extend vent and soil stacks and other roof penetrations, using matching materials, as required to accommodate additional insulation thickness.
2. Extend existing ductwork inside existing roof curbs to accommodate extension of curb.
 - a. Use materials matching existing ductwork; minimum of 20 ga. (0.9 mm) galvanized duct with Pittsburgh folded seam slip joints-typical.

- B. Rooftop Equipment, Electrical: Engage a qualified electrician to perform electrical disconnection and reconnection.

1. Disconnect, reroute, extend and reconnect existing power feeders and control circuits (conduit and wiring) feeding the existing roof mounted equipment which is indicated to be raised and/or relocated to a new elevation/location and as required by the Contract.

2. Provide weatherproof exterior junction boxes, when required.
 3. Make connections to mechanical equipment by using a maximum 18-inch (450-mm) length of liquid-tight flexible steel conduit.
 - a. Rigid connections to mechanical equipment are not permitted.
 4. Relocate and reconnect existing disconnect switches presently installed on existing roof mounted equipment indicated to be raised and/or relocated.
- C. Prevent discharge of refrigerant. Verify that refrigerant has been properly recovered from equipment to be removed.
- D. Reinstall designated equipment.
1. Make electrical reconnections in accordance with applicable code and authorities having jurisdiction.
 2. Recharge HVAC equipment with refrigerant required by equipment manufacturer.
 3. Coordinate with Owner to test equipment and verify proper operation.
- E. Remove and dispose of designated abandoned equipment. Infill openings in deck with matching materials. Infill roofing system with materials of same type as existing, adjacent roofing system.

3.7 FASTENER PULL-OUT TESTING

- A. Fastener Testing: Perform fastener pullout tests according to SPRI FX-1, and submit test report prior to installing new roofing system.

3.8 BASE FLASHING REMOVAL

- A. Remove existing base flashings around parapets, curbs, walls, and penetrations.
1. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal counterflashings that are to remain.

1. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.

3.9 PARAPET SHEATHING AND CLADDING

- A. Parapet Sheathing: Inspect parapet sheathing for deterioration and damage. If parapet sheathing has deteriorated, immediately notify Owner's Architect.
- B. Parapet Sheathing: Remove existing parapet sheathing and replace with new preservative-treated plywood sheathing, 19/32 inch (15 mm) thick. If parapet framing has deteriorated, immediately notify Owner's Consultant.

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.
- B. Transport and legally dispose of demolished materials off Owner's property.

3.11 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by preparation for re-roofing operations. Return adjacent areas to condition existing before operations began.

END OF SECTION 070150.19

SECTION 07220 THERMAL INSULATION COMPONENTS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. As may exist, include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings that the furnished construction be complete in every respect, and that this Contractor shall provide all labor, equipment and expertise needed to provide a complete, thorough and professional installation. Materials, detailing and other articles/items incorporated in the work shall be new and of the best possible grade in all respects.

1.02 WORK TO BE PERFORMED

- A. The drawings indicate and show limits of construction for this project. The specifications specify material and work requirements for this project. Both are complementary to each other and both shall be followed to complete the Work.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications:
 - 1. Section 06110 – Nailers & Blocking
 - 2. Section 07510 – Cold-Process Multiple-Ply Roofing
 - 3. Section 07600 – Flashings & Sheet Metal

1.04 SUBMITTALS

- A. Submit in accordance with Section 01300, SUBMITTALS.

1. A letter from the roof system manufacturer, stating that the insulation materials to be used on the project are acceptable for use with the manufacturer's warranted system.
2. Manufacturer's data sheet on thermal-insulation and gypsum cover-board materials.
3. Manufacturer's data sheet on each type of fastener and adhesive proposed for use.
4. Manufacturer's Material Safety Data Sheets for all products specified in this Section.

1.05 GUARANTEE

- A. The Contractor shall furnish to the Owner a written guarantee covering all defects of materials and workmanship of this Section that occur within a period of two (2) years from the date of final completion of the project. Should any defects in materials or workmanship develop within this time, all repairs and replacements shall be made at no additional cost to the Owner.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Roof system installation shall not take place during inclement weather or when the air temperature or wind chill temperature is below 40° F.
- B. Material safety data sheets of all specified products of this section shall be kept on site daily for project duration.

PART 2 - PRODUCTS

2.01 GYPSUM COVER-BOARD MATERIAL

- A. Gypsum underlayment material shall be non-rotting, moisture-resistant board stock with fiberglass facing. Provide Dens-Deck Prime (1/2" thickness), as supplied by Georgia-Pacific Corp. Materials shall meet the following properties:

Properties	1/4"	1/2"	5/8"
Thickness, nominal	1/4" + 1/16"	1/2" ± 1/32"	5/8" ± 1/32"
Width, standard	4' ± 1/8"	4' ± 1/8"	4' ± 1/8"
Length, standard	4' and 8' ± 1/4"	4' and 8' ± 1/4"	4' and 8' ± 1/4"
Weight, lbs./sq. ft., nominal	1.15	1.975	2.55
Surfacing	Glass mat non-asphaltic coating	Glass mat with non-asphaltic coating	Glass mat with non-asphaltic coating
Flexural Strength ¹ , parallel, lbs. min.	40	80	100
Flute Spanability ²	2-5/8"	5'	8'
Permeance ³ , perms	50	35	32
"R" Value ⁴	.28	.56	.67
Linear Variation with Change in Temp., in/in °F	8.5x10 ⁻⁶	8.5x10 ⁻⁶	8.5x10 ⁻⁶
Linear Variation with Change in Moisture, in/in %RH	6.25x10 ⁻⁶	6.25x10 ⁻⁶	6.25x10 ⁻⁶
Water Absorption ⁵ , % max	10.0	10.0	10.0
Compression Strength, psi nominal	500 - 900	500 - 900	500 - 900
Surface Water Absorption ⁶ , grams, nominal	<2.0	<2.0	<2.0
Flame Spread, Smoke Developed (ASTM E 84)	0/0	0/0	0/0
Fire Classification	FM CLASS 1 (as overlayment) UL 1256, ULC S-126 UL Class A (UL 790) ULC S-107	FM Class 1 (FM 4450) UL 1256, ULC S-126 UL Class A (UL 790) ULC S-107	FM Class 1 (FM 4450) UL 1256, ULC S-126 UL Classified "P" assemblies ULC Classified "R" assemblies ULC S-101 Class A (UL 790), ULC S-107
Mold Resistance per ASTM D 3273 ⁶	Mold resistant	Mold resistant	Mold resistant
FM Approvals ⁷	60 and 90 psf uplift/ FM Class 1-90 as an overlayment	FM 1-60, 1-90, 1-135	FM 1-60, 1-90, 1-180
Bending Radius	5'	8'	12'

1. Tested in accordance with ASTM C 473.

2. Tested in accordance with ASTM E 661 (400 lb. conc. load only for 1/2" and 5/8").

3. Tested in accordance with ASTM E-96 (dry cup method).

4. Tested in accordance with ASTM C 518 (heat flow meter).

5. ASTM C 1177 minimums.

6. When tested as manufactured in accordance with ASTM D 3273.

7. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using DensDeck, DensDeck Prime or DensDeck DuraGuard roof boards in their FM-Approved construction designs.

- B. Tapered edge strips shall be eighteen (18) inches wide and fabricated from high-density wood fiber insulation.

- Type: ASTM C 208-72(1982), wood fiber.
- Board dims.: 18" x 48"
- Taper: 1-1/2" to 1/8", across eighteen (18) inches.

- C. Wood fiber cant strips where indicated shall be high-density wood fiber insulation. Fiber cant strips shall be four (4) feet in length and cut with a four (4) inch face at a forty-five (45) degree angle.

2.02 ISOCYANURATE INSULATION

- A. Isocyanurate insulation, flat-stock and tapered, shall be rigid, closed-cell isocyanurate core integrally bonded to non-asphaltic fiberglass facing in the foaming process. Isocyanurate insulation shall be supplied by Hunter Panels Inc., and shall adhere to the following listed properties:

<u>PROPERTY</u>		<u>TEST METHOD</u>
<u>VALUE</u>		
Water Absorption % Volume	ASTM C-209	<1% volume
Dimensional Stability	ASTM D-2126	
1.0% max		7 days
Compressive Strength	ASTM D-1621	20 psi min.
Foam Core Density	ASTM D-1622	
2.1 lbs/cu. ft.		
Moisture Vapor Transmission	ASTM E 96	<1.0
perm		
Flame Spread	ASTM E-84	
25 max		
Taper (slope)		
¼" per lin. ft.		

- B. All isocyanurate insulation shall have the same facing materials and be sourced to the same insulation manufacturer.

2.03 TREMCO LOW RISE FOAM INSULATION ADHESIVE:

- A. Tremco Low Rise Foam Insulation Adhesive is a two component (1:1 ratio), solvent free, elastomeric urethane adhesive. Tremco Low Rise Foam Insulation Adhesive is asbestos free, extremely low in odor, and does not contain any bitumen or VOC's.:

Property	Typical Value	Test Method
Tensile Strength	Min. 250 psi	ASTM D 412
Density	8.5 lbs./gal.	ASTM D 1875
Peel Adhesion	Min. 17 lbf./in.	ASTM D 903
Flexibility	Pass @ 70°F	ASTM D 816
Flame Spread Index	10	ASTM E 84
Smoke Developed Index	30	ASTM E 84

PART 3 – EXECUTION

3.01 EXAMINATION

- A. All insulation materials shall be installed over a clean, dry and properly prepared substrate acceptable to Tremco Inc. and the Owner. The Contractor shall inspect the surface to determine that it is smooth and uniform to receive new materials. Prior to starting the work, the Contractor shall notify the Full-Time Inspector and Owner that the deck is ready for new work to begin.
- B. No more insulation materials shall be installed than can be completely-covered with the finished roofing system on the same working day.

3.02 PREPARATION AND PROTECTION

- A. All installed insulation materials must be fully protected from precipitation and condensation damage at all times. Any wet/damp materials shall be marked and removed from the site and replaced prior to installation of new membrane.
- B. Contractor shall stockpile materials so as not to overload the structure.
- D. Contractor should note that gypsum board-stock materials are easily fractured/damaged. Broken/fractured and/or damaged gypsum materials are not to be installed within the new roofing assembly.

3.03 INSTALLATION - GENERAL

- A. All insulation and gypsum cover-board materials shall be neatly-cut to fit around roof penetrations and projections. Ensure that edges/ends of insulation materials bear on the top-portion of the steel deck, and are not cantilevered across the flutes of the steel roof deck.
- B. Insulation materials are to be laid in parallel courses with transverse joints staggered (12" minimum) with joints in underlying courses.
- C. Insulation and gypsum cover-board materials shall be installed without gaps or voids and with smooth transitions and tightly fitting joints.
- D. No insulation materials shall be cut to fit less than two (2) square feet unless size of opening dictates.
- E. Provide tapered edge strips to provide a smooth-transition at perimeters, where vertical conditions vary from the height of the perimeter blocking. The top surface of the gypsum board shall be installed flush with the top surface of the wood blocking at perimeter locations.

3.04 ROOF DECK PREPARATION

- A. Prior to installing new roofing materials, the Roofing Contractor is responsible for removing all loose-debris and moisture from the existing roof deck. Concrete deck and Ribs/flutes of the steel decking shall be thoroughly-cleaned by the Contractor, prior-to proceeding with new work. No work shall proceed until the roof deck is accepted/approved by the full-time, onsite inspector (Tremco Inc.).
- B. Carefully-inspect the roof deck to identify conditions which would negatively impact the installation of new materials. Uneven, poorly-attached or damaged roof decking components are to be brought to the attention of the Owner's Representative, prior to proceeding with the work.

3.05 VAPOR RETARDER / THERMAL INSULATION INSTALLATION

Flat Roof Area: (Roof Assembly tested per NEMO Assembly #S-85 (52.5 PSF)

- A. BASE-LAYERS:
 - 1. Mechanically fasten flat stock and tapered insulation over existing insulation to steel deck per specifications. Total thermal insulation must provide an average R-30 over the roof area. Stagger all joints, between insulation layers (12"), minimum.
 - 2. Cut/fit insulation materials to provide close/tight (1/8" max.) proximities to perimeters, roof penetrations and other, similar conditions.
- B. GYPSUM COVER-BOARD: ADHERED
 - 1. Over properly-installed tapered insulation components, adhere a final top-layer of Securock Gypsum Fiber Roof cover-board (1/2" thickness) in TREMCO Low Rise Foam insulation adhesive, 3/4" ribbons at 12 inches on center.
 - 2. Ensure all gypsum cover-board materials are joined tightly at perimeters, with a maximum joint-gap of 1/8". All cover-board components are to be weighted to provide continuous/complete contact with the underlying tapered insulation materials.

END OF SECTION

SECTION 073110 ASPHALT SHINGLES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The work of this Section consists of furnishing and installing of all asphalt shingles, as well as related flashings, underlayment, ice and water shield and related items as depicted on the drawings and/or specified herein, or such materials required to successfully-complete the required work.
- B. All materials shall be verified by the Contractor to be proper for each intended use, and the entire work of this Section shall be done in such a manner that each installation will perform its intended purpose as applicable, in the finished work.
- C. Provide all asphalt shingles, as well as related flashings, felt underlayment, ice and water shield, ridge vents, and related items, as specified herein and indicated on drawings, or as otherwise might be required, for the proper installation of the new roofing, siding, gutters and downspouts and related work.
- D. The drawings indicate and show limits of construction for this project. The specifications specify materials and work requirements for this project. Both are complementary to each other and both shall be followed to complete the work.
- E. See Bid Form Alternates for additional requirements and related work.

1.02 RELATED WORK UNDER OTHER SECTIONS

- A. Carefully examine all of the Project Documents for requirements that affect the work of this Section. The exact scope of work of this Section cannot be fully determined without a thorough review of all specification sections and other Project Documents. The Project Manual/Bid Form and General Notes to the Bidding Contractors apply to the work of this section.
 - 1. Related Sections (include but are not limited to the following):
 - a. Section 020500 - Selective Demolition
 - b. Section 061000 – Rough and Finish Carpentry
 - c. Section 070150 – Rehabilitation of Single Ply Roofing
 - d. Section 074113 – Metal Standing Seam Roof Panels, Ventilated
 - e. Section 077100 – Gutters, Downspouts and Snow Guards

1.03 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.
- B. Reference Standards:
 - 1. ASTM B 209 – Standard Specification for Aluminum and Aluminum- Alloy Sheet and Plate
 - 2. ASTM B 370 – Standard Specification for Copper Sheet and Strip for Building Construction.
 - 3. ASTM D 225 – Standard Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules.
 - 4. ASTM D 226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
 - 5. ASTM D 1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials used as Steep Roofing Underlayment for Ice Dam Protection.
 - 6. ASTM D 3018 – Standard Specification for Class A Shingles Surfaced with Mineral Granules.
 - 7. ASTM D 3161 – Standard Test Method for Wind Resistance of Asphalt Shingles (Fan-Induced Method).
 - 8. ASTM D 3462 – Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
 - 9. ASTM D-4869 – Standard Specification for Asphalt-Saturated Organic Felt Shingle Underlayment Used in Roofing.
 - 10. ASTM G 21 – Determining Resistance of Synthetic Polymers to Fungi

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of asphalt shingle, and ridge cap shingles. Include similar samples of trim and accessories involving color selection.

C. Samples for Verification: For the following products, of sizes indicated, to verify color selected and match to existing.

1. Asphalt Shingle: Full-size asphalt shingle strip.
2. Ridge and Hip Cap Shingles: Full-size ridge and hip cap asphalt shingle.
3. Ridge Vent: 12-inch- (300-mm-) long Sample.
4. Self-Adhering Ice & Water Shield Underlayment: 12 inches (300 mm) square.

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for asphalt shingles.

E. Certificate of Compliance: Provide Certificate of Compliance from an independent laboratory indicating that the asphalt fiberglass shingles made in normal production meet or exceed the requirements of the following:

1. ASTM E 108/UL 790 Class A Fire Resistance
2. ASTM D 3161/UL 997 Wind Resistance.
3. ASTM D 3462

1. F. Maintenance Data: For asphalt shingles to include in maintenance manuals.

B. G. Warranties: Provide manufacturer's Lifetime asphalt shingle performance warranty.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: A firm or individual that is approved, authorized, or licensed by asphalt shingle roofing system manufacturer to install roofing system indicated.

B. Source Limitations: Obtain field shingles as well as ridge and hip cap shingles, ridge vents through one source from a single asphalt shingle manufacturer.

C. Fire-Test-Response Characteristics: Provide asphalt shingle and related roofing materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108 or UL 790, for application and roof slopes indicated.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approval of mockups is also for other material and construction qualities specifically approved by Architect in writing.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated, weathertight location according to asphalt shingle manufacturer's written instructions. Store underlayment rolls on end on pallets or other raised surfaces. Do not double-stack rolls.
- B. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.
- C. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingle roofing to be performed according to manufacturer's written instructions and warranty requirements.
- B. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

1.08 WARRANTY

- A. Material Warranty Period: "Silver Pledge" Lifetime (40 Year Commercial), limited transferable warranty from date of Substantial Completion.
- B. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to 130 mph 15 years from date of Substantial Completion.
- C. "Stain-Guard" Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 10 years from date of Substantial Completion.
- D. Special Project Warranty: Roofing Installer's warranty, on warranty form at end of this Section, signed by roofing Installer, covering Work of this Section, in

which roofing Installer agrees to repair or replace components of asphalt shingle roofing that fail in materials or workmanship within the following warranty period: 2 years from date of Substantial Completion.

1.09 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- 1. Asphalt Shingles: 100 sq. ft (9.3 sq. m) of each type, in unbroken bundles.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Provide products manufactured by the GAF Corporation Timberline “HDZ” Lifetime Shingle series, Owens Corning “Duration” Lifetime Shingle series, or Owner approved equal.
- B. Shingles color, texture and shape will be selected by Owner from Manufacturer’s standard color line.

2.02 ASPHALT FIBERGLASS ARCHITECTURAL SHINGLES

- A. Basis of design: GAF Timberline “HDZ” Lifetime Shingles: Conforming to UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Class F; ASTM D 3018, Type 1; ASTM D 3462; Miami-Dade County Approved, Florida Building Code Approved.
- B. Self sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced Micro Weave® core, layer lock technology, and StainGuard® protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5” or 5 5/8” exposure and features the classic Natural Shadow™ effect.
- C. Weight: 300 pounds per square (100 square feet)

2.02 UNDERLAYMENT MATERIALS

- A. Felts: ASTM D-4869 Type I, 15# asphalt-saturated organic felts, non-perforated. Approved by Manufacture for use as general underlayment where ice and water shield is not specified.

- B. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of 40-mil- (1.0- mm-) thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied and approved by Manufacture for use as Ice and Water Shield

1. Performance Properties

- A. Roll Length 22.9 m (75 ft) 11.0 m (36 ft)
 - B. Roll Width 914 mm (36 in.) 914 mm (36 in.)
 - C. Roll Weight 27.9 kg (61.4 lbs) 15.3 kg (33.6 lbs)
 - D. Color Gray-Black
 - E. Thickness, Membrane 1.02 mm (40 mil) ASTM D3767 Method A
 - F. Tensile Strength, Membrane 1720 kN/m² (250 psi) ASTM D412 (Die C Modified)
 - G. Elongation, Membrane 250% ASTM D412 (Die C Modified)
 - H. Low Temperature Flexibility Unaffected @ -29°C (-20°F) ASTM D1970
 - I. Adhesion to Plywood 525 N/m (3.0 lbs/in. width) ASTM D903
 - J. Permeance (max) 2.9 ng/m²s Pa (0.05 Perms) ASTM E96
 - K. Material Weight Installed (max) 1.3 kg/m² (0.3 lb/ft²) ASTM D461
- C. Acceptable Manufacturers: W.R. Grace, Ice and Water Shield; GAF StormGuard Leak Barrier; Owens Corning Titanium PSU30. No alternate products will be accepted.

2.03 FLASHING MATERIALS

- A. Sheet Flashing – Galvanized Steel: ASTM A 361/A361M; 22 Gauge steel with minimum G115/Z350 galvanized coating
- B. Drip Edge – Aluminum T-Type Profile: ASTM B 209; 0.032 thick aluminum, mill finish.
- C. Step Flashing at Masonry – Copper: 16 oz./sq. ft. (4.8 kg/m²); 0.22 inch/24 ga. (0.55 mm) thick.
- D. Bitumious Paint: Acid and alkali resistant type; black color.

2.04 ACCESSORIES

- A. Nails: ASTM F 1667, standard round wire type roofing nails, corrosion resistant; hot dipped zinc coated steel, aluminum or chormated steel; minimum 3.8 inch (9.5mm) head diameter; minimum 11 or 12 gage (2.5mm) shank diameter; shank to be sufficient length to penetrate through the roof sheathing or ¾ inch (19mm) into solid wood, plywood or non-veneer wood decking.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
2. Felt Underlayment Nails: Aluminum, stainless-steel, or hot-dip galvanized steel wire with low profile capped heads or disc caps, 1-inch (25-mm) minimum diameter.

B. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

2.05 FLASHING FABRICATION

- A. Form flashing to profiles indicated on Drawings and to protect roofing materials from physical damage and shed water.
- B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item and as follows:
 1. Apron Flashings: Fabricate with lower flange a minimum of 4 inches over and 4 inches beyond each side of downslope asphalt shingles and 6 inches up the vertical surface.
 2. Step Flashings: Fabricate with a headlap of 4 inches and a minimum extension of 4 inches over the underlying asphalt shingle and up the vertical surface.
 3. Drip Edges: Fabricate in lengths not exceeding 10 feet with 6-inch roof deck flange and 1-1/2-inch fascia flange with 3/8-inch drip at lower edge.

PART 4 - PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through asphalt shingles.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 UNDERLAYMENT INSTALLATION

- A. Single-Layer Felt Underlayment: Install single layer of felt underlayment on roof deck perpendicular to roof slope in parallel courses. Lap sides a minimum of 2 inches over underlying course. Lap ends a minimum of 4 inches. Stagger end laps between succeeding courses at least 72 inches. Fasten with felt underlayment nails.
- B. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment. Lap sides of felt over self-adhering sheet underlayment not less than 3 inches in direction to shed water. Lap ends of felt not less than 6 inches over self-adhering sheet underlayment
- C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated on Drawings, lapped in direction to shed water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days.
1.
 1. Eaves: Extend from edges of eaves 72" inches **minimum up-slope** beyond interior face of exterior wall.
 2.
 2. Vertical Walls: Extend from exterior vertical walls 36" inches **minimum** beyond exterior face of wall. Extend up wall 36" minimum and as indicated on the drawings.
 3. Gables: Cover entire gable extending out to field of roof 36" minimum. Do not obstruct continuous ridge vent slot.
 4. Rakes: Extend from edges of rake 36 inches beyond interior face of exterior wall.
 5. Valleys: Extend from lowest to highest point 36 inches on each side.
 6. Hips: Extend 36 inches on each side.
 7. Ridges: Extend 36 inches on each side without obstructing continuous ridge vent slot.
 8. Dormers, Chimneys, Skylights, and other Roof-Penetrating Elements: Extend beyond penetrating element 24 inches and return vertically against penetrating element not less than 12 inches.
 9. Roof Slope Transitions: Extend 18 inches on each roof slope.

D. Concealed Woven Valley Lining: Comply with ARMA and NRCA recommendations. Install a 36-inch-wide felt underlayment centered in valley. Fasten to roof deck with felt underlayment nails.

1. Lap roof deck felt underlayment over valley felt underlayment at least 6 inches
2. Install a 36-inch-wide strip of granular-surfaced valley lining centered in valley, with granular-surface face up. Lap ends of strips at least 12 inches in direction to shed water, and seal with asphalt roofing cement. Fasten to roof deck with felt underlayment nails.

3.03 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Division 7 Section "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.

C. Step Flashings: Install with a headlap of 4 inches and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.

D. Cricket Flashings: Install against the roof-penetrating element extending concealed flange beneath upslope asphalt shingles and beyond each side.

E. Rake Drip Edges: Install rake drip edge flashings over underlayment and fasten to roof deck.

F. Eave Drip Edges: Install base layer of ice and water shield wrapping down the face of the new fascia and as detailed on the drawings. Install eave drip edge flashings above underlayment and fasten to roof sheathing. Install top layer of ice and water shield starting at face of drip edge and continuing upslope 72" minimum.

G. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.04 ASPHALT SHINGLE INSTALLATION

A. Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

- B. Install pre cut starter strip products (with factory applied adhesive) along lowest roof edge, consisting of an asphalt shingle strip at least 7 inches wide with self-sealing strip face up at roof edge. Set starter strip in a 4" (102mm) width of asphalt plastic roof cement. Install starter strip along rake edge following instructions above. Install each starter strip shingle using 6 nails.
- C. Extend asphalt shingles 3/4 inch over fascia at eaves and rakes.
- D. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- E. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- F. Install asphalt shingles by single-strip column or racking method, maintaining uniform exposure. Install full length first course followed by cut second course, repeating alternating pattern in succeeding courses.
- G. Fasten asphalt shingle strips with roofing nails located according to manufacturer's written instructions for enhanced windspeed warranty coverage.
- H. When ambient temperature during installation is below 50 deg F, seal asphalt shingles with asphalt roofing cement spots.
- I. Woven Valleys: Extend succeeding asphalt shingle courses from both sides of valley 18 inches (450 mm) beyond center of valley, weaving intersecting shingle-strip courses over each other. Use one-piece shingle strips without joints in the valley.
- J. Do not nail asphalt shingles within 6 inches (150 mm) of valley center.
- K. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.
- L. Comply with basic fastening for asphalt shingles as required by the manufacturer, but never less than six roofing nails, or as indicated above to obtain manufacturers highest wind resistance rating.

16.

3.05 CLEAN-UP

- A. The building and adjacent areas (including landscaping, sidewalks and staging/storage areas) shall be left in a broom-clean condition at the end of

each day. All dumpsters or dump trailers shall be covered at the end of each day to prevent the migration of debris through high-winds.

B. On completion of the work of this section and after removal of all debris, the site shall be left in a clean condition satisfactory to the Owner.

END OF SECTION 073110

SECTION 075216 SBS MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 5 - GENERAL

5.1 SUMMARY

A. Section Includes:

1. Styrene-butadiene-styrene (SBS) modified bituminous membrane roofing system on metal deck, including but not limited to:
 - a. Roof insulation.
 - b. Roof insulation cover board.
 - c. SBS-modified bituminous membrane roofing.
 - d. Granule-surfaced SBS-modified bituminous membrane cap sheet.

B. Related Sections:

1. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, wood cants, curbs, and blocking.
2. Division 07 Section "Preparation for Re-Roofing" for recover board beneath new membrane roofing.
3. Division 07 Section "Roof Specialties" for manufactured copings and roof edge flashings.
4. Division 22 Section "Roof Drains" for roof drains.

C. Alternates: Refer to Division 01 Section "Alternates" for description of Work in this Section affected by alternates.

D. Unit Prices: Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

5.2 DEFINITIONS

- A. Roofing Terminology:** Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and glossary in applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" for definition of terms related to roofing work in this Section.

5.3 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference: Conduct conference at Project site
1. Meet with Owner, Owner's Consultant, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review drawings and specifications.
 3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 5. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 6. Review structural loading limitations of roof deck during and after roofing.
 7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 8. Review governing regulations and requirements for insurance and certificates if applicable.
 9. Review temporary protection requirements for roofing system during and after installation.
 10. Review roof observation and repair procedures after roofing installation.

5.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work. Provide roof plan showing orientation and types of roof deck, orientation of membrane roofing, and fastening spacings and patterns for mechanically fastened components.
1. Base flashings and built-up terminations.
 - a. Indicate details meet requirements of NRCA and FMG required by this Section.

2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.
4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
5. Membrane fastening or adhesion requirements.

C. Samples for Verification: For the following products:

1. Sheet roofing materials, of color specified for exposed material.
2. Metal termination bars.
3. Walkway materials.

5.5 INFORMATIONAL SUBMITTALS

A. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.

B. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.

1. Include letter from Manufacturer written for this Project indicating approval of Installer.

C. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of compliance with performance requirements.
 - a. Include: UL listing certificate.
2. Product Compatibility: Indicate manufacturer has verified compatibility of roofing system components, including but not limited to: Roofing membrane, flashing sheets, adhesives and sealants.

D. Warranties: Unexecuted sample copies of special warranties.

- E. Field Quality Control Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

- 1. Submit reports within 48 hours after inspection.

5.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: To include in maintenance manuals.
- B. Warranties: Executed copies of warranties.

5.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Owner's Consultant, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Approved manufacturer with UL listed roofing systems comparable to those specified for this Project, with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.
- C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 - 1. An authorized full-time technical employee of the manufacturer.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products.

5.8 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 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.
- C. 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.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

5.9 PROJECT / 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. Daily Protection: Coordinate installation of roofing so insulation and other components of 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 and insulation with a course of roofing sheet securely in place with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 - 3. Remove temporary plugs from roof drains at end of each day.
 - 4. Remove and discard temporary seals before beginning work on adjoining roofing.

5.10 WARRANTY

- A. Manufacturer's Warranty: Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.
 - 1. Form of Warranty: Manufacturer's standard warranty form.
 - 2. Scope of Warranty: Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.
 - 3. Warranty Period: 20 years from date of completion.
- B. Manufacturer Inspection and Preventive Maintenance Service: To report maintenance responsibilities necessary for preservation of Owner's warranty rights and to perform periodic routine maintenance required, as described in Manufacturer's standard form. The cost of manufacturer's inspections and preventive maintenance is included in the Contract Sum.
 - 1. Scope of Service: Manufacturer's standard form.
 - 2. Inspections to occur: Annually, following completion, during the Warranty period.
- C. Installer Warranty: Installer's warranty signed by Installer, as follows.
 - 1. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.
 - 2. Scope of Warranty: Work of this Section.
 - 3. Warranty Period: 2 years from date of completion.

PART 6 - PRODUCTS

6.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer/Product: To establish an acceptable, minimum standard of quality, design and function, specifications and drawings have been based on the following Tremco CPG Inc., Cold Process Modified Bitumen Roofing Systems, with products named in other Part 2 articles. Subject to compliance with requirements, provide the named product or comparable product system, meeting or exceeding all specified performance criteria, by one of the following.
 - 1. Garland Roofing.

2. SR Products.Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

6.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane 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. Membrane roofing and base flashings shall remain watertight.
 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746/D3746M, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.
- B. Roofing System Design: Provide roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency in accordance with ANSI/FM 4474, UL 580, or UL 1897, and to resist uplift pressures calculated in accordance with ASCE-7-16, and applicable code.
 1. Exposure Category: Exposure B.
 2. Importance Factor: II.
 3. Basic Wind Speed: 130 mph (per ASCE 7-16, Fig 26.5-1C)
 1. Zone 1 (Field-of-Roof) Uplift Pressure: 47.6 psf.
 2. Zone 2 (Perimeter) Uplift Pressure: 62.9 psf, located within 12 ft. of roof perimeter.
 3. Zone 3 (Corners) Uplift Pressure: 62.9 psf, located within 12 ft. of roof outside corner (x 4 ft. wide strip per ASCE 7-16).
- C. SPRI Wind Design Standard: Manufacture and install roof edge flashings tested according to ANSI/SPRI ES-1.
 1. Design Pressure: As indicated on Drawings.
 2. Design Pressure: 85.7 psf.
- D. Flashings and Fastening: Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:

1. FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.
 2. FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.
 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.
 5. Comply with requirements of Division 07 Section "Roof Specialties".
- E. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

6.3 MATERIALS, GENERAL

- A. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

6.4 ROOFING MEMBRANE MATERIALS

- A. SBS Modified Bituminous Membrane Smooth-Surfaced Sheets:

1. SBS-modified asphalt coated composite polyester / fiberglass/fiberglass mat reinforced high tensile strength base sheet, ASTM D4601 Type II.
 - a. Basis of design product: Tremco, BURmastic Composite Ply HT.
 - b. Tensile Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction, 165 lbf/in (725 N); Cross machine direction, 150 lbf/in (660 N).
 - c. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction, 260 lbf (1150 N); Cross machine direction, 230 lbf (1120 N).
 - d. Thickness, minimum, ASTM D5147: 0.060 inch (1.5 mm).

- B. SBS Modified Bituminous Membrane Granular-Surfaced Cap Sheet:

1. SBS/RET/Urethane-modified asphalt-coated glass-fiber-reinforced high-tensile strength sheet, white granular surfaced, ASTM D6163 Type III Grade G .

- a. Basis of design product: Tremco, POWERply Endure 100 FR.
- b. Tensile Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction 185 lbf/in (32 kN/m); Cross machine direction 210 lbf/in (35 kN/m).
- c. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction, 325 lbf (1445 N); Cross machine direction 325 lbf (1445 N).
- d. Elongation at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction 6 percent; Cross machine direction 8 percent.
- e. Low Temperature Flex, maximum, ASTM D5147: Machine Direction, -40 deg. F (-40 deg. C); Cross machine direction -35 deg. F (-37 deg. C).
- f. Thickness, minimum, ASTM D5147: 0.130 inch (3.3 mm).

C. Flashing Backer Sheet:

1. SBS-modified asphalt coated composite polyester / fiberglass/fiberglass mat reinforced high tensile strength base sheet, ASTM D4601 Type II.
 - a. Basis of design product: Tremco, BURmastic Composite Ply HT.
 - b. Tensile Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction, 165 lbf/in (725 N); Cross machine direction, 150 lbf/in (660 N).
 - c. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction, 260 lbf (1150 N); Cross machine direction, 230 lbf (1120 N).
 - d. Thickness, minimum, ASTM D5147: 0.060 inch (1.5 mm).

D. Flashing Sheet:

1. Flashing Sheet: Same as cap sheet.
 - a. Basis of design product: Flashing Sheet: Same as cap sheet.
 - b. Color: White.
2. Thermoplastic PVC/TPA sheet, internally fabric reinforced, Energy Star qualified, CRRC listed, and California Title 24 Energy Code compliant, ASTM D4434 Type IV.
 - a. Basis of design product: Tremco, TPA Single Ply Roof Membrane.

- b. Tensile Strength at 0 deg. F (-18 deg. C), minimum, ASTM D751: 300 lbf/in (1330 N).
- c. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D751: 100 lbf (440 N).
- d. Elongation at 0 deg. F (-18 deg. C), minimum at fabric break, ASTM D751: 25 percent machine direction, 25 percent cross-machine direction.
- e. Minimum Thickness, nominal, ASTM D751: 0.045 in (1.1 mm).
- f. Color: White.
- g. Solar Reflectance Index (SRI), ASTM E1980: 108 (White, initial) 84 (White, 3-year aged).
- h. Recycled Content, minimum: 25 percent pre-consumer.

E. Fluid-Applied Flashing Material:

- 1. Polyurethane Roof Coating System Base Coat: Bio-based, low-odor low-VOC two-part, for use with a compatible top coat.
 - a. Basis of design product: Tremco, AlphaGuard BIO Base Coat.
 - b. Combustion Characteristics, UL 790: Maintains combustion characteristics of existing roof system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 1 g/L.
 - d. Accelerated Weathering, 5000 hours, ASTM G154: Pass.
 - e. Hardness, Shore A, minimum, ASTM D2240: 80.
 - f. Solids, by volume, ASTM D2697: 100 percent.
 - g. Bio-Based Content, Minimum: 70 percent.
 - h. Minimum Thickness, Base Coat reinforced over Granular Surfaced MB: 64 mils (1.62 mm) wet.
- 2. Polyurethane roof coating system top coat, bio-based low-odor low-VOC two-part, for application over compatible base coat.
 - a. Basis of design product: Tremco, AlphaGuard BIO Top Coat.

- b. Combustion Characteristics, UL790: Maintains combustion characteristics of existing roof system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 6 g/L.
 - d. Solar Reflectance Index (SRI), ASTM E1980: For white, not less than 103.
 - e. Accelerated Weathering, 5000 hours, ASTM G 154: Pass.
 - f. Hardness, Shore A, minimum, ASTM D2240: 81.
 - g. Solids, by volume, ASTM D2697: 100 percent.
 - h. Bio-Based Content, Minimum: 60 percent.
 - i. Minimum Thickness, reinforced system: 32 mils (0.81 mm) wet.
 - j. Color: White.
- 3. Polyester Reinforcing Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings.
 - a. Basis of design product: Tremco, Permafab.
 - b. Tensile Strength, Minimum, ASTM D5034 (2-inch): MD - 110 lbs (49.8 kg); XMD - 60 lbs (27.2 kg) avg.
 - c. Elongation, Minimum, ASTM D5034 (1-inch): MD - 25 percent; XMD - 100 percent.
 - d. Tear Strength, Minimum, ASTM D5587: MD - 20 lbs (9.0 kg) avg; XMD - 20 lbs (9.0 kg) avg.
 - e. Weight: 3 oz./sq. yd (102 g/sq. m).

6.5 COLD-APPLIED ADHESIVE MATERIALS

- A. General: Adhesive and sealant materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
 - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Modified Bituminous Base-Ply, Interply and Cap Sheet Adhesive:

1. Cold-applied bio-based low odor urethane roofing adhesive, two-part, USDA BioPreferred, formulated for compatibility and use with specified roofing membranes and flashings.
 - a. Basis of design product: Tremco, POWERply Endure BIO Adhesive TF.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3690: 0 g/L.
 - c. Low Temperature Flexibility, ASTM D2240: Pass at -30 deg F (-34 deg C).
 - d. Solids, by Volume, ASTM D2697: 100 percent.
 - e. Biobase Content, Minimum, ASTM D6866: 70 percent.

C. Flashing Sheet Adhesive: and Flashing Backer

1. Cold-applied bio-based low odor urethane roofing adhesive, two-part, USDA BioPreferred, formulated for compatibility and use with specified roofing membranes and flashings.
 - a. Basis of design product: Tremco, POWERply Endure BIO Adhesive TF.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3690: 0 g/L.
 - c. Low Temperature Flexibility, ASTM D2240: Pass at -30 deg F (-34 deg C).
 - d. Solids, by Volume, ASTM D2697: 100 percent.
 - e. Biobase Content, Minimum, ASTM D6866: 70 percent.

6.6 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Stripping Adhesive / Sealer:
 1. Seam Sealer: Aromatic polyurethane sealer, single-component, high solids, moisture curing, formulated for compatibility and use with a variety of roofing and flashing substrates.
 - a. Basis of design product: Tremco, GEOGARD Seam Sealer.

- b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 189 g/L.
 - c. Tensile Strength, ASTM D412: 270 psi (1860 kPa).
 - d. Tear Strength, ASTM D412: 35 pli (6.13 kNm).
 - e. Elongation, ASTM D412: 220 percent.
 - f. Color: Gray.
 - 2. Cold-applied roofing surfacing adhesive, one-part white solar reflective low-VOC polymeric water-based, formulated for compatibility and use with specified roofing membranes, and for stripping-in TPA flashing membrane.
 - a. Basis of design product: Tremco, Rock-It-Adhesive WB.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D6511: 46 g/L.
 - c. Nonvolatile content, minimum ASTM D6511: 40 percent.
- C. Stripping Reinforcing Fabric:
 - 1. Woven Glass Fiber Mesh, Vinyl-Coated: Non-shrinking, non-rotting, vinyl-coated woven glass mesh for reinforcing flashing seams, membrane laps, and other roof system detailing.
 - a. Basis of design product: Tremco, BURmesh.
 - b. Tensile strength, 70 deg. F, min ASTM D146: Warp, 65 lbf/in (285 N); fill, 75 lbf/in (310 N).
 - c. Color: Aqua green.
- D. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.
 - 1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.
 - a. Basis of design product: Tremco, TremSEAL Pro.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.

- c. Hardness, Shore A, ASTM C661: 40.
 - d. Adhesion to Concrete, ASTM C794: 35 pli.
 - e. Tensile Strength, ASTM D412: 350 psi (2410 kPa).
 - f. Color: Closest match to substrate.
- E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- F. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."
- G. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

6.7 SUBSTRATE BOARDS

- A. Substrate / Thermal Protection Board:
- 1. Gypsum panel, cellulosic fiber reinforced, water-resistant, ASTM C1278/C1278M.
 - a. Basis of design product: Tremco/USG Securock.
 - b. Thickness: 1/2 inch (13 mm).

6.8 VAPOR RETARDER

- A. Vapor Retarder Membrane:
- 1. SBS-modified asphalt-coated composite glass fiber mat / glass fiber scrim sheet, ASTM D6163 Type III Grade S.
 - a. Basis of design product: Tremco, POWERply Heavy Duty Base Sheet.
 - b. Tensile Strength at 0 deg. F (18 deg. C), minimum, ASTM D5147: Machine direction, 220 lbf/in (38 kN/m); Cross machine direction, 190 lbf/in (33 kN/m).

- c. Elongation at 0 deg. F (-18 deg. C), minimum, ASTM D5147: Machine direction, 3.0 percent; Cross machine direction, 3.5 percent.
- d. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction 220 lbf (975N); Cross machine direction, 240 lbf (1065N).
- e. Low Temperature Flexibility, minimum, ASTM D5147: 0 deg. F (-18 deg. C).
- f. Thickness, minimum, ASTM D5147: 0.120 inch (3.0 mm).

B. Vapor Retarder Adhesive:

- 1. Cold-applied bio-based low odor urethane roofing adhesive, two-part, USDA BioPreferred, formulated for compatibility and use with specified roofing membranes and flashings.
 - a. Basis of design product: Tremco, POWERply Endure BIO Adhesive TF.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3690: 0 g/L.
 - c. Low Temperature Flexibility, ASTM D2240: Pass at -30 deg F (-34 deg C).
 - d. Solids, by Volume, ASTM D2697: 100 percent.
 - e. Biobase Content, Minimum, ASTM D6866: 70 percent.

6.9 ROOF INSULATION MATERIALS

A. Roof Insulation, General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

- 1. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated, not less than two times the roof slope.

B. Roof Insulation:

- 1. Board Insulation, Polyisocyanurate: CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces, ASTM C1289 Type II Class 1.

- a. Basis of design product: Tremco, Trisotech Insulation; RESISTA; Atlas, ACFoam II; or other manufacturer's approved polyisocyanurate.
- b. Compressive Strength, ASTM D1621: Grade 2: 20 psi (138 kPa).
- c. Conditioned Thermal Resistance at 75 deg. F (24 deg. C): 14.4 at 2.5 inches (50.8 mm) thick.

6.10 ROOF INSULATION ACCESSORIES

A. Insulation Cover Board:

- 1. Gypsum panel, cellulosic fiber reinforced, water-resistant, ASTM C1278/C1278M.
 - a. Basis of design product: Tremco/USG Securock.
 - b. Thickness: 1/2 inch (13 mm).

B. Roof Insulation Adhesive:

- 1. Urethane adhesive, bead-applied, low-rise two-component solvent-free low odor, formulated to adhere roof insulation to substrate.
 - a. Basis of design product: Tremco, Low Rise Foam Insulation Adhesive.
 - b. Flame Spread Index, ASTM E84: 10.
 - c. Smoke Developed Index, ASTM E84: 30.
 - d. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.
 - e. Tensile Strength, minimum, ASTM D412: 250 psi (1720 kPa).
 - f. Peel Adhesion, minimum, ASTM D903: 17 lbf/in (2.50 kN/m).
 - g. Flexibility, 70 deg. F (39 deg. C), ASTM D816: Pass.

C. Insulation Cant Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.

D. Tapered Edge Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.

- E. Insulation Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

6.11 WALKWAYS

A. Walkway Material:

- 1. Walkway pads, ceramic-granule-surfaced reinforced asphaltic composition slip-resisting pads, manufactured as a traffic pad for foot traffic, 1/2 inch (13 mm) thick minimum (for use below non-penetrating equipment as detailed).
 - a. Basis of design product: Tremco, Trem-Tred.
 - b. Flexural Strength at max. load, minimum, ASTM C203: 218 psi (1.5 kPa).
 - c. Granule adhesion (weight loss), maximum, ASTM D4977: 1.1 gram.
 - d. Impact Resistance at 77 deg. F (25 deg. C), ASTM D3746: No Damage to Roof.
 - e. Pad Size: 36 by 48 inch (914 by 1220 mm).

B. FRP Roof Walkways: Refer to Division 07 Section "Roof Walkways."

PART 7 - EXECUTION

7.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that 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. Existing Prepared Roof Substrate: Verify that existing insulation and substrate is sound and dry. Refer to requirements of Division 07 Section "Preparation for Re-Roofing."
 - 4. Steel Roof Deck:

- a. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."
 - b. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.
- B. Verify that insulation and substrate is sound and dry.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

7.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. 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.

7.3 INSTALLATION, GENERAL

- A. Install roofing system in accordance with manufacturer's written instructions, approved shop drawings, and Contract Documents.
- B. Install wood cants, blocking, curbs, and nailers in accordance with requirements of Division 06 Section "Miscellaneous Rough Carpentry."
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing

7.4 ROOFING INSTALLATION DETAILS

- A. NRCA Installation Details: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations; modify as required to comply with manufacturer's approved details and perimeter fastening requirements of FM Global references if applicable.

7.5 SUBSTRATE BOARD INSTALLATION

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
 - 1. At Pool Roof "D" adhere substrate board to top flanges of steel deck with approved low-rise foam adhesive to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions.
 - a. Space continuous adhesive ribbons at 12" o.c. (every other flange) in field of roof, and at 6" o.c. (every flange) at perimeter and corners.

7.6 VAPOR RETARDER INSTALLATION

- A. Vapor Retarder Installation, General: Completely seal vapor retarder/air barrier at terminations, obstructions, and penetrations to prevent air movement into roofing system. Seal vapor retarder/air barrier to air barrier in adjacent construction at perimeter of roofing system.
- B. SBS Modified Sheet Vapor Retarder: Install one lapped vapor retarder course and adhere in a uniform application of cold-applied adhesive, according to roofing system manufacturer's written instructions.

7.7 INSULATION INSTALLATION

- A. Comply with roofing manufacturer's written instructions for installing roof insulation.
- B. Coordinate installing membrane roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday
- C. Cant Strips: Install and secure preformed 45-degree cant strips at junctures of built-up roofing with vertical surfaces or angle changes greater than 45 degrees.
- D. Tapered Insulation and Crickets: Install tapered insulation under area of roofing to conform to slopes indicated.
 - 1. Where crickets are indicated or required to provide positive slope to drain, make slope of crickets minimum of two times the roof slope, not less than 1/4 inch in 12 inches (1:48).

- 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 (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- F. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (70 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
 - 1. Flat Insulation System on Sloped Roof Deck: Install insulation at minimum thickness as follows:
 - a. Minimum total thickness of Continuous Insulation: 5.2 inches.
 - 1) Minimum thickness of base layer: 2 inches.
 - 2) Minimum thickness of each subsequent layer: 2 inches.
 - b. Continuous Insulation R-value: Not less than 30.
 - 2. Insulation Drain Sumps: Tapered insulation sumps, not less than 2 by 2 ft. (600 by 600 mm), sloped to roof drain; sump to maximum depth of not more than 1 inch (25 mm) less than the Project-stipulated continuous insulation thickness based upon code requirements.
- 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 of roof that do not terminate at vertical surfaces.
- I. Adhered Insulation Application Method (at Pool Roof "D"): Install each layer of insulation and adhere to substrate as follows:
 - 1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
 - 2. Bead spacing is 12" o.c. for field, 6" o.c. for perimeter, and 3" o.c. for corners.

- J. Mechanically Fastened Insulation Application Method (at Roofs A, B & C): Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
 - a. Fasten boards at 1 per 1.3 s.f. (21 per 4'x8' board) at field and perimeter, and increase spacing to 1 per 1 s.f. (32 per 4'x8' board at corners).
- K. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together. Tape joints if required by roofing manufacturer.
 - 1. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover in place.
 - 2. Spacing varies by roof type as noted on the drawings.

7.8 COLD-APPLIED ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in NRCA's "Quality Control and Quality-assurance Guidelines for the Application of Membrane Roofing" and as follows:
 - 1. Number of Smooth-Surfaced SBS-Modified Asphalt Sheets: Two.
 - a. Adhering Method: Cold-adhesive applied.
 - 2. Granular-Surfaced SBS-Modified Asphalt Cap Sheet:
 - a. Adhering Method: Cold-adhesive applied.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Cooperate with testing agencies engaged or required to perform services for installing roofing system.

- D. Coordinate installation of roofing system so insulation and other components of the roofing membrane 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 membrane sheets and insulation with a course of coated felt set in compatible roofing cement/mastic, with joints and edges sealed.
 - a. Comply with roofing membrane manufacturer's instructions and details for waterstop/daily tie-in; utilize staggered layout and unadhered, removable "deadman" insulation boards.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 - 3. Remove temporary plugs from roof drains at end of each day.
 - 4. Remove and discard temporary seals before beginning work on adjoining roofing.
- E. Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

7.9 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane base-ply sheet, ply sheet(s) and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
 - 1. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
 - 2. Embed each sheet in cold-applied membrane adhesive applied at rate required by roofing manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Install roofing membrane sheets so side and end laps shed water. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Granular Cap Sheet Laps: Apply roofing granules to cover exuded bead at laps.

7.10 HEAT-WELDING CAP SHEET SEAMS

- A. Cap Sheet Seam Heat-Welding: Prepare and weld seams according to roofing manufacturer's written instructions.
 - 1. Clean minimum 4 inch (102 mm) wide seam area on both surfaces to be joined. Remove debris and contaminants. Allow seam to thoroughly dry prior to performing welding.
 - 2. Continuously weld 4 inch (102 mm) wide seam using roofing manufacturer's recommended automatic heat welding machine or hand-held heat gun. Roll seam with minimum 75 lb. (34 kg) steel roller.

7.11 FLASHING AND STRIPPING INSTALLATION

- A. Base Flashing Installation, General: Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof; secure to substrates according to roofing system manufacturer's written instructions, and as follows:
 - 1. Extend base flashing up walls or parapets a minimum of 12 inches (300 mm) above modified bituminous roofing and 6 inches (150 mm) onto field of built-up roofing.
 - 2. Prime substrates with primer if required by roofing system manufacturer.
- B. Backer Sheet Installation: Apply backer sheet to substrate as follows:
 - 1. Mechanically fasten backer sheet to vertical surfaces. Adhere backer sheet over modified bituminous roofing at cants in cold-applied flashing sheet adhesive.
 - 2. Adhere backer sheet to substrate in cold-applied flashing sheet adhesive.
- C. Flashing Sheet Installation: Adhere flashing sheet to substrate in cold-applied adhesive. Apply cold-applied flashing sheet adhesive to back of flashing sheet if recommended by roofing manufacturer.
 - 1. Flashing Sheet Top Termination: Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
 - a. Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.

2. Flashing Sheet Bottom Termination: Adhere flashing sheet to roofing membrane in continuous bed of cold-applied adhesive.
 - a. Bituminous Flashing: Seal bottom termination of base flashing by adhering to roofing membrane and stripping flashing to membrane joint.
 - b. Elastomeric Flashing Sheet: Heat weld vertical flashing joints. Seal bottom termination of base flashing by adhering to roofing membrane with cold-applied adhesive and sealing flashing-to-membrane joint with joint sealant.
- D. Fluid-Applied Flashing Application: Apply base coat with embedded fabric reinforcement and top coat at parapets, curbs, penetrations, and drains in accordance with manufacturer's written instructions.
 1. Apply base coat to achieve minimum wet mil coating thickness indicated in Part 2 product listing, unless greater thickness is recommended by manufacturer.
 2. Apply top coat over flashing base coat and spread coating evenly to achieve minimum wet mil coating thickness indicated in Part 2 product listing, unless greater thickness is recommended by manufacturer.
 3. Seal top termination of base flashing with a continuous bead of joint sealant.
- E. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.
- F. Install stripping, according to roofing manufacturer's written instructions, where metal flanges and edgings are set on modified bituminous membrane roofing.
- G. Flashing-Sheet Stripping: Install flashing-sheet stripping in a continuous coating of compatible mastic/adhesive sealer, as recommended by roofing manufacturer, and extend onto roofing membrane. Apply number of courses recommended by manufacturer.
- H. Roof Drains: Set 30 by 30 inch (760 by 760 mm) square metal flashing in bed of compatible mastic/adhesive sealer on completed roofing membrane. Cover metal flashing with roofing membrane cap sheet stripping and extend a minimum of 6 inches (150 mm) beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.
 1. Install stripping according to roofing system manufacturer's written instructions.

7.12 WALKWAY INSTALLATION

- A. Walkways, General: Install walkways according to roofing manufacturer's written instructions.
 - 1. Install walkways at following locations:
 - a. Where indicated on Drawings.
 - b. Perimeter of each rooftop unit.
 - c. Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.
 - d. Between each roof hatch and each rooftop unit location or path connecting rooftop unit locations.
 - e. Top and bottom of each roof access ladder.
 - f. Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.
- B. FRP Roof Walkways: Install FRP walkways in accordance with requirements of Division 07 Section "Roof Walkways."

7.13 FIELD QUALITY CONTROL

- A. Roofing Inspector: Contractor shall engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
 - 1. Engage a qualified roofing inspector for a minimum of 5 full-time days on site, per 40-hour crew week, to perform roof tests and inspections and to prepare start up, interim and final reports. Roofing Inspector's quality assurance inspections shall comply with criteria established in NRCA's "Quality Control and Quality-assurance Guidelines for the Application of Membrane Roofing Systems."
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation at commencement and upon completion.
 - 1. Notify Owner's Consultant and Owner 48 hours in advance of date and time of inspection.

- C. Repair or remove and replace components of built-up roofing where test results or inspections indicate that they do not comply with specified requirements.
 - 1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

7.14 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Owner's Consultant 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

SECTION 075416 KETONE ETHYLENE ESTER (KEE) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Adhered thermoplastic KEE roofing system on metal deck
2. Roof insulation.
3. Roof insulation cover board.
4. Walkway material.

B. Related Sections:

1. Division 07 Section "Preparation for Re-Roofing" for recover board beneath new membrane roofing.
2. Division 07 Section "Sheet Metal Flashing and Trim" for shop-formed sheet metal items including roof drainage system items, roof penetration flashings, base and counterflashings and reglets, and formed copings and roof edge metal items.
3. Division 07 Section "Roof Specialties" for manufactured copings, roof edge flashings and counterflashings, and roof edge drainage systems.

1.2 DEFINITIONS

- ##### A. Roofing Terminology:
- Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" and NRCA's Glossary for definition of terms related to roofing work in this Section.

1.3 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Roofing Conference:
- Conduct conference at Project site.

1. Meet with Owner, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review drawings and specifications.
3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
6. Review structural loading limitations of roof deck during and after roofing.
7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
8. Review governing regulations and requirements for insurance and certificates if applicable.
9. Review temporary protection requirements for roofing system during and after installation.
10. Review roof observation and repair procedures after roofing installation.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 1. Base flashings and membrane terminations.
 - a. Indicate details meet requirements of NRCA and FMG required by this Section.

2. Tapered insulation, including slopes and crickets.
3. Roof plan showing types and orientation of roof deck and orientation of membrane roofing and fastening spacings and patterns for mechanically fastened membrane roofing if applicable.
4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

C. Samples for Verification: For the following products:

1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
2. Walkway pads or rolls.
3. Metal termination bars.

D. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, Manufacturer and Roofing Inspector.

1. Include letter from Manufacturer written for this Project indicating approval of Installer.

B. Manufacturer Certificates:

1. Submit evidence of compliance with specified requirements in "Performance Requirements" Article.
2. Product Compatibility: Indicate manufacturer has verified compatibility of roofing system components, including but not limited to: Roofing membrane, flashing sheets, adhesives, and sealants.

C. Warranties: Unexecuted sample copies of special warranties.

D. Inspection Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions taken to correct defective work.

1. Submit reports within 48 hours after inspection.

- E. Manufacturer's Instructions: Submit copy of manufacturer's written installation instructions for specified roofing system.

1.6 CLOSEOUT SUBMITTALS

- A. Executed copies of warranties.
- B. Maintenance Data: To include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Approved manufacturer with roofing systems comparable to that specified for this Project, with minimum five years' experience in manufacture of thermoplastic roof membrane products in successful use in similar applications.
- C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 1. An authorized full-time technical employee of the manufacturer.
 2. An independent party certified as a Registered Roof Observer by the International Institute of Building Enclosure Consultants (formerly the Roof Consultants Institute) retained by the Contractor or the Manufacturer and approved by the Manufacturer.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site access to manufacturer's written recommendations and instructions for installation of products.

1.8 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 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.
- C. 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.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 PROJECT / 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. Daily Protection: Coordinate installation of roofing so insulation and other components of 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 and insulation with a course of roofing sheet securely in place with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 - 3. Remove temporary plugs from roof drains at end of each day.

4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.10 WARRANTY

- A. Manufacturer's Warranty: Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.

1. Form of Warranty: Manufacturer's standard warranty form.
2. Scope of Warranty: Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.
3. Warranty Period: 20 years from date of completion.

- B. Manufacturer Inspection Services: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum.

1. Inspections to occur in following years: 2, 5, 10 and 15 following completion.

- C. Installer Warranty: Installer's warranty signed by Installer, as follows.

1. Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.
2. Scope of Warranty: Work of this Section.
3. Warranty Period: 2 years from date of completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: The roof system specified in this Section is based upon products of Tremco CPG Inc, Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Provide specified products or comparable products of one of the following.

1. Fibertite / Seaman Corp.

2. SR Products.

- B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane 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. Membrane roofing and base flashings shall remain watertight.
1. Accelerated Weathering: Roofing system shall withstand 10,000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746/D3746M, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.
- B. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency in accordance with ANSI/FM 4474, UL 580, or UL 1897, and to resist uplift pressures calculated in accordance with ASCE-7 and applicable code.
1. Zone 1 (Field-of-Roof) Uplift Pressure: 47.6 psf.
 2. Zone 2 (Perimeter) Uplift Pressure: 62.9 psf, located within 12 ft. of roof perimeter
 3. Zone 3 (Corner) Uplift Pressure: 62.9 psf, located within 8 ft. of outside corners
- C. SPRI Wind Design Standard: Manufacture and install copings and roof-edge flashings tested according to ANSI/SPRI ES-1.
1. Design Pressure: 85.7 psf.
- D. Flashings and Fastening: Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:

1. FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.
 2. FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.
 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.
 5. Comply with requirements of Division 07 Section "Sheet Metal Flashing and Trim" and Roof Specialties".
- E. Exterior Fire-Test Exposure: ASTM E108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

2.3 MATERIALS, GENERAL

- A. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

2.4 THERMOPLASTIC MEMBRANE MATERIALS

A. KEE Roof Membrane:

1. Thermoplastic Ketone Ethylene Ester (KEE) coated polyester fabric-reinforced sheet, ASTM D6754.
 - a. Basis of design product: Tremco, TremPly KEE Single Ply Roof Membrane.
 - b. Breaking Strength, minimum, ASTM D751: Machine direction, 500 lbf/in (87 kN/m); Cross machine direction, 400 lbf/in (70 kN/m).
 - c. Tear Strength, minimum, ASTM D751: Machine direction, 120 lbf (162 N/m); Cross machine direction, 140 lbf (190 N/m).
 - d. Elongation at Break, ASTM D751: 20 percent.
 - e. Dynamic Impact/Puncture Resistance, ASTM D5635: 30 J, minimum.

- f. Minimum Membrane Thickness, nominal, less backing, ASTM D751: 60 mils (1.5 mm).
 - g. Thickness over fiber, optical method: 0.016 inches (0.406).
 - h. Accelerated Weathering, ASTM G155 and ASTM G154: Not greater than 15,000 hr., no cracking or crazing.
 - i. Abrasion Resistance, ASTM D3389: Not greater than 2,000 cycles, H-18 wheel, 1,000 g load.
 - j. Color: White.
 - k. Solar Reflectance Index (SRI), ASTM E1980: 110 (White, initial), 86 (White, 3-yr aged).
- B. Sheet Flashing: Manufacturer's standard, smooth-backed, sheet flashing of same material, type, reinforcement, thickness and color as KEE roof membrane.

2.5 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
 - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Membrane Bonding Adhesive:
 - 1. Bonding adhesive, solvent based fast drying, VOC-compliant, for bonding KEE smooth-backed single ply membranes and flashings to substrates.
 - a. Basis of design product: Tremco, TremPly KEE LV Bonding Adhesive.
 - b. VOC, maximum, ASTM D 3960: 200 g/L.
- C. Flashing Membrane Adhesive: Same as membrane bonding adhesive.
- D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.

- E. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch (25 mm wide by 1.3 mm) thick, prepunched.
- F. Metal Stress Plates - Mechanically Attached System: Manufacturer's standard AZ50 Galvalume-coated steel formed plates, 0.047 inch thick, with radial corners and membrane-engaging barbs engineered to enhance wind resistance for mechanically-attached KEE membrane roofing systems. FMG approved.
 - 1. Basis of Design Product: OMG Polymer Gyptec fastener with 2-inch Gyptec metal barbed plate, or manufacturer's approved equal.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to membrane roofing system manufacturer.
- H. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.
 - 1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.
 - a. Basis of design product: Tremco, TremSEAL Pro.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.
 - c. Hardness, Shore A, ASTM C661: 40.
 - d. Adhesion to Concrete, ASTM C794: 35 pli.
 - e. Tensile Strength, ASTM D412: 350 psi (2410 kPa).
 - f. Color: Closest match to substrate.
- I. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.6 ROOF INSULATION MATERIALS

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from insulation manufacturer's standard sizes, suitable for application, and of thicknesses indicated.
 - 1. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/8 inch per 12 inches (1:96) unless otherwise indicated.
 - 2. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated, not less than two times the roof slope.
- B. Roof Insulation: Provide roof insulation product in thicknesses indicated in Part 3 as follows:
 - 1. Board Insulation, Polyisocyanurate: CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces, ASTM C1289 Type II Class 1.
 - a. Basis of design product: Tremco, Trisotech Insulation.
 - b. Compressive Strength, ASTM D1621: Grade 2: 20 psi (138 kPa).
 - c. Conditioned Thermal Resistance at 75 deg. F (24 deg. C): 14.4 at 2.5 inches (50.8 mm) thick.

2.7 ROOF INSULATION ACCESSORIES

- A. Cover Board:
 - 1. Gypsum panel, glass-mat-faced, primed, ASTM C1177/C1177M.
 - a. Basis of design product: Tremco/GP Gypsum DensDeck Prime.
 - b. Thickness at Adhered Membrane: 1/2 inch (12 mm).
 - c. Thickness at Mechanically Attached Membrane: 1/4 inch (6 mm).
- B. Roof Insulation Adhesive:

1. Urethane adhesive, bead-applied, low-rise two-component solvent-free low odor, formulated to adhere roof insulation to substrate.
 - a. Basis of design product: Tremco, Low Rise Foam Insulation Adhesive.
 - b. Flame Spread Index, ASTM E84: 10.
 - c. Smoke Developed Index, ASTM E84: 30.
 - d. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.
 - e. Tensile Strength, minimum, ASTM D412: 250 psi (1720 kPa).
 - f. Peel Adhesion, minimum, ASTM D903: 17 lbf/in (2.50 kN/m).
 - g. Flexibility, 70 deg. F (39 deg. C), ASTM D816: Pass.
- C. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- D. Tapered Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- E. Insulation Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.
 1. Basis of Design for wood deck: Trufast #15 EHD fasteners with 3-inch metal insulation plates, or manufacturer's approved equal.

2.8 WALKWAY MATERIALS

- A. Walkway Material:
 1. Protection walkway roll, reinforced KEE membrane roll with diamond-tread, slip-resistant surface, fabricated for heat welding to compatible KEE membrane surface.
 - a. Basis of design product: Tremco, TremPly KEE Protection Walkway Roll.
 - b. Roll Size: 30 inches by 100 ft (760 mm by 25.4 m).
 - c. Thickness: 0.060 inch (1.5 mm).

- d. Breaking strength: 450 lbs (77 kN/m).
- e. Color: Light Gray.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Verify that blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - 3. Verify that substrate is sound and dry.
 - 4. Prepared Existing Roof Substrate: Verify that existing insulation and roofing substrate is sound and dry. Refer to requirements of Division 07 Section "Preparation for Re-Roofing."
 - 5. Wood Roof Deck: Verify that deck shows no signs of damage, rot or deterioration, and is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.
 - 6. Gypsum Cement Roof Deck: Verify that deck is smooth and flush, secure to subpurlins and exhibits no cracks greater than 1/16 inch (1.6 mm), no damage, spalling or other signs of deterioration.
 - a. Verify fastener withdrawal resistance of gypsum cement roof deck by pullout testing according to SPRI FX-1.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

- B. 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.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION, GENERAL

- A. Install roofing system in accordance with manufacturer's written instructions and approved details.
- B. Install wood blocking, curbs, and nailers, and anchor to structural deck in accordance with the requirements of FMG Loss Prevention Data Sheet 1-49."
- C. NRCA Installation Details: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations; modify as required to comply with manufacturer's approved details and perimeter fastening requirements of FM Global references if applicable.

3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Tapered Insulation and Crickets: Install tapered insulation under area of roofing to conform to slopes indicated.
 - 1. Where crickets are indicated or required to provide positive slope to drain, make slope of crickets minimum of two times the roof slope, not less than 1/4 inch in 12 inches (1:48).

- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (70 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
 - 1. Tapered Insulation System for Flat Roof Deck: Install insulation as follows:
 - a. Minimum total thickness of Continuous Insulation: To provide Average R-30 across the specified roof area, not less than 1" at drains.
 - 1) Minimum thickness of base layer: 2 inches.
 - 2) Minimum thickness of each subsequent layer: 2 inches.
 - b. Continuous Insulation R-value: Average Not less than 30.
 - 2. Insulation Drain Sumps: Tapered insulation sumps, not less than 8 by 8 ft. (2438 by 2438 mm), sloped to roof drain.
 - a. Sump to maximum depth of not more than 1 inch (25 mm) less than the Project-stipulated continuous insulation thickness based upon code requirements.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. 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 (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- G. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

- H. Cover Boards: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together.
 - 1. Secure cover boards Secure cover boards to resist uplift pressure at corners, perimeter, and field of roof.
 - 2. Mechanically fasten cover boards for preliminary attachment at mechanically attached membrane system.
 - 3. At fully-adhered membrane system, adhere cover boards by setting in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover board in place.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
- B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Solvent-Based Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow adhesive to become tacky before installing membrane roofing; do not allow adhesive to fully dry. Roll membrane into adhesive. Do not apply adhesive to splice area of membrane.
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
- G. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.
- I. Install membrane roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition. Install in such a manner as to not void warranty for existing membrane roofing system.

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.

3.7 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.8 FIELD QUALITY CONTROL

- A. Roofing Inspector: Contractor shall engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
 - 1. Engage a qualified roofing inspector for a minimum of 5 full-time days on site, per 40-hour crew week, to perform roof tests and inspections and to prepare start up, interim, and final reports. Roofing Inspector's quality assurance inspections shall comply with applicable criteria established in NRCA's "Quality Control and Quality-assurance Guidelines for the Application of Membrane Roofing Systems."
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- D. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane 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 075416

SECTION 076000 FLASHINGS AND SHEET METAL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.
- D. It is the intent of the Specifications and the Drawings to require that the construction be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

- A. Furnish and install metal flashings required to complete the roofing application according to details and specified herein. This includes but is not limited to the following:
 - 1. Remove and replace all existing metal flashings, including all fascia, gutters, roof penetrations, counter-flashings, expansion joints and all other metal flashings as indicated herein.
 - 2. Furnish and install new concealed fastener interlocking aluminum flat seam panels and related self-adhering high temperature waterproof membrane on rising walls as indicated on the drawings.
- B. The drawings indicate and show limits of construction for this project. The specifications specify material and work requirements for this project. Both are complementary to each other and both shall be followed to complete the work.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications:
 - 1. Section 02 05 00 - Selective Demolition

2. Section 06 10 00 – Rough Carpentry and Wood Blocking
3. Section 07 52 16 – SBS Modified Bituminous Membrane Roofing

1.04 SUBMITTALS

- A. Submit complete shop drawings of all sheet metal flashing and trim in accordance, including but not limited to:
 1. New perimeter fascia & gutter details all roof areas.
 2. New roof area divider-expansion joint flashing details.
 3. New concealed fastener interlocking aluminum flat seam panels.
 4. Other detailing that may be requested by the Owner, or their designated representative.
- B. Do not commence fabrication of any work or begin installation until approval has been obtained from the Owner.

1.05 PROJECT CONDITIONS

- A. Work shall be performed only during dry weather and applied to dry surfaces with all materials entirely free of moisture.

1.06 CODES AND STANDARDS

- A. Except as modified by the requirements of other governing codes and by this specification, work shall conform to the provisions and recommendations of the following codes and standards:
 1. All copper work shall be in accordance with the latest published literature of Revere Copper Company (Copper & Common Sense).
 2. Metal installation shall be in accordance with the Architectural Sheet Metal Manual published by the Sheet Metal and Air Conditioning Contractor National Association, Inc. (SMACNA).
 3. Comply with all requirements and recommendations of Factory Mutual's Loss Prevention Data 1-49 for FM Approved Perimeter Flashing system, flashing material thickness, fastener types, sizes, and spacing.

1.07 QUALITY ASSURANCE

- A. All personnel concerned with the shop fabrication and field installation of sheet metal work must be qualified sheet metal journeymen who may be assisted by sheet metal apprentices qualifying for their journeyman status. The foreman of the crew must have at least five (5) years experience in sheet metal work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Four (4) lb. sheet lead for roof drain flashings, soldered flanges and other miscellaneous conditions, applications.
- B. Sixteen (16) oz. zinc coated copper for plumbing-vent sleeves, cylindrical sleeve/umbrella flashings, pitch-pockets, slip-flashings, thru-wall scupper sleeves and other flashing details in-contact with copper or lead-coated copper components.
- C. Prefabricated fascia with a continuous extruded aluminum anchor bar with pre-punched fastener holes, and a 24 Ga. Galvanized Steel or .040" Aluminum high performance coated fascia cover. Tremlock 215 Fascia MB by Tremco Inc. or other equivalent FM Approved, ANSI/SPRI ES1 tested and approved fascia system:
 - 1. Fabricate to size and profile indicated from manufacturer's standard profile dimensions and as indicated in the project details.
 - 2. Provide all related splice plates, fasteners, sealants and accessories compatible with manufacturer's elastomeric membrane flashing sheet for a complete system sections with minimum length of 144 IN , but not exceeding 12 FT .
 - 3. Joint Style:
 - a. 1/4 IN Butt Joint with 12 IN wide, exposed cover plate.
- D. Prefabricated parapet coping with 20 Ga. sloped galvanized steel cleats with pre-punched fastener holes, spaced per manufacturers installation specifications, and a 24 Ga. Galvanized Steel or .040" Aluminum high performance coated fascia cover. Tremlock Infinity Flush Coping by Tremco Inc. or other equivalent FM Approved, ANSI/SPRI ES1 tested and approved fascia system:
 - 1. Fabricate to size and profile indicated from manufacturer's standard profile dimensions and as indicated in the project details.
 - 2. Provide all related splice plates, fasteners, sealants and accessories compatible with manufacturer's elastomeric membrane flashing sheet for a complete system sections with minimum length of 144 IN , but not exceeding 12 FT .
 - 3. Joint Style:
 - a. 1/4 IN Butt Joint with 12 IN wide, exposed cover plate.

- E. Prefabricated fascia drip edge with a continuous 22 Ga. Galvanized Steel cleat with pre-punched fastener holes, and a 24 Ga. Galvanized Steel or .040" Aluminum high performance coated fascia cover, and 24 Ga. Galvanized Steel formed gutter where indicated. Tremlock Drip Edge & Gutter by Tremco Inc. or other equivalent FM Approved, ANSI/SPRI ES1 tested and approved fascia system:
 - 1. Fabricate to size and profile indicated from manufacturer's standard profile dimensions and as indicated in the project details.
 - 2. Provide all related splice plates, fasteners, sealants and accessories compatible with manufacturer's elastomeric membrane flashing sheet for a complete system sections with minimum length of 96 IN , but not exceeding 12 FT .
 - 3. Provide stainless steel gutter brackets and related fasteners at gutter for a complete installed gutter system per manufacturer's specifications.
- F. Forty (40) mil. (.050 in.), aluminum sheet-metal with Kynar-500 / Hylar 500 high performance finish for use at concealed fastener interlocking wall panels, surface-mounted counterflashings, and other flashing details in-contact with aluminum components.
 - 1. Finish: All aluminum sheet metal is to be coated with a 2-coat system using a combination of Kynar 500® / Hylar 5000 High Performance, two coat system consisting of a fluorocarbon base top coat over a quality matched primer, with the same primer on the back side for additional protection.
 - 2. Warrantee: All aluminum sheet metal is to be warranted for A 30-year, non-prorated warranty covering color, fade, chalking and film integrity
 - 3. Color: Standard/stock color choices are to be provided to the Owner for selection by the Owner.
- G. Solder for lead coated copper shall be 60% block tin and 40% pig lead conforming to ASTM Specification B32, Sn 40.
- H. Flux shall be non-acid type flux manufactured specifically for use with sheet copper.

2.02 FASTENERS

- A. For attaching sheet metal to masonry, use 3/16" diameter mushroom-head, stainless-steel anchors.

- B. For attaching sheet metal to wood, use twelve (12) gauge copper wire slating nails, sufficient length to provide 1.5" embedment into the substrate.
- C. Fasteners for attaching aluminum sheet-metal to wood blocking, use flat-head, diamond-point, round barbed-shank roofing nails:
 - 1. Gauge: 6061-T913 alloy wire.
 - 2. Length: Sufficient to penetrate underlying wood blocking 1-1/4 inches, minimum.
 - 3. Pop-rivets used for the attachment of sheet metal components shall be fabricated from compatible components as required to avoid galvanic reactions. Match fasteners with sheet metal as follows:

Sheet Metal Type	Fasteners Type and Material		
	Nails	Screws	Rivets
Aluminum	Aluminum or Zinc	Aluminum or Zinc	Aluminum or Zinc
Copper	Copper	Bronze	Copper

- D. For attaching stainless-steel sheet-metal to wood blocking, use FS FF-N-105B, Type II, Style 20, roofing nails; galvanized steel wire, flat-head, diamond-point, round, barbed shank.
- E. For attaching termination bar/metal to masonry, use 3/16" x 2" zinc plated flat head screw type masonry fastener.
- F. Provide bituminous coating or EPDM gaskets to isolate dissimilar materials as shown on the drawings.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. Workmanship for sheet metal shall be as follows:
 - 1. Surfaces to be covered with sheet metal shall be free from defects of every description and clean of dirt and other foreign matter before sheet metal work is started.
 - 2. Lines, arises and angles shall be sharp and true. Plane surfaces shall be free from waves and buckles. Joints and seams in plain surfaces shall be avoided as far as possible.

3. Sheet metal work exposed to the weather shall be permanently watertight and weather tight, with suitable provisions made for free expansion and contraction without causing leaks.
4. Exposed edges shall be doubled back 1/2 inch in such a manner as to conceal them and provide stiffness.
5. No nails shall be exposed on the face of the finished work except as approved by the Owner or except as directed herein.
6. Solder all lock seams at pipe vent and rail posts sleeves.

3.02 INSTALLATION (GENERAL)

- A. Install metal flashing in accordance with manufacturer's recommendations.
- B. Finish work to be free from water leakage under all weather conditions.
- C. Sheet metal panel lines, brakes, and angles are to be sharp and true, and surfaces free from objectionable wave, warp, or buckle. Fold exposed edges of sheet metal back 1/2 inch to form an inside hem.
- D. Install electrolytic insulation or coating materials between dissimilar metals. Avoid to the greatest extent practical, using dissimilar metals in contact with each other.
- E. All exposed new sheet metal work shall be cleaned at completion of installation. Grease and oil films, handling marks, contamination from steel wool, fitting and drilling debris shall be removed and the work scrubbed clean.
- F. Prime all exposed sheet metal surfaces that come into contact with new built-up roofing and flashing
- G. Proceed with flashing work concurrently to membrane installation to prevent water intrusion into the roof assembly.
- H. Fasteners exposed to weather shall utilize EPDM washers between the fastener head and the metal flashing.
- I. All new exposed metal surfaces shall be free of dents, creases, waves, scratch marks, and solder or weld marks. Daily cleanup and removal from the site of all shavings, clippings, shearing, rivets, fasteners, and whatever other debris resulting from these operations are required.
- J. Prime all exposed sheet metal surfaces that come into contact with new built-up roofing and flashing.

- K. Clean and protect flashing system from damage and wear during remainder of construction period.

END OF SECTION

SECTION 077100 GUTTERS, DOWNSPOUTS AND SNOW GUARDS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Fabrication and installation of new gutter and downspout work indicated, including hangers, brackets, end caps, prefabricated mitered corners, and tie into existing decorative downspouts and related collector boxes to remain.
 - 1. The roofing contractor shall furnish and install new Gutters at roofing areas indicated for a complete system as specified.
 - 2. The roofing contractor shall furnish and install new snow guards at areas indicated for a complete pan style snow guard system as specified.
 - 3. Provide new leaf diverter cap on all new gutters as specified.
 - 4. See Bid Form Alternates and Unit Costs for additional requirements.

1.02 RELATED WORK

- A. Carefully examine all of the Project Documents for requirements that affect the work of this Section. The exact scope of work of this Section cannot be fully-determined without a thorough review of all specification sections and other Project Documents. The Project Manual/Bid Form and General Notes to the Bidding Contractors apply to the work of this section.
 - 1. Related Sections (include but are not limited to the following):
 - a. Section 02050 - Selective Demolition
 - b. Section 06100 - Rough Carpentry
 - c. Section 070150 – Rehabilitation of Single Ply Roofing
 - d. Section 073110 - Asphalt Shingles
 - e. Section 074113 – Metal Standing Seam Roof Panels, Ventilated

1.03 SUBMITTALS

- A. Shop Drawing: Submit plans indicating location of gutters and downspouts.

- B. Product Data: Submit catalog cuts of all products and materials proposed for use.
- C. Full size sample of snow guard, gutter and bracket showing finish and profiles for approval of the Owner.

PART 2 – PRODUCTS

2.01 RAIN DRAINAGE COMPONENTS

- A. Prefinished metal for gutters and downspouts shall be prefinished aluminum .032” minimum thickness with Kynar coating system. – Color: Match existing.
- B. Gutters: Pre-finished aluminum .032” minimum thickness, 5 inch, K-Style profile to match existing gutters to remain.
- C. End Caps: Pre-finished aluminum .032” minimum thickness, end caps.
- D. Hanger Units: Stainless steel concealed gutter hanger system, complete with rods and nuts. Spacing 18” o.c. maximum.
- E. Snow Guards: Pan style snow guards shall be Alpine Snowguard PD10 Zinc or approved equal. Install in areas indicated in standard three (3) row pattern per manufacturer’s specifications.
- F. Leaf Diverters: To fit existing and new gutter sizes; “Gutter Solution” top mount high velocity screen hybrid system or approved equal. “Gutter Solution” information available at guttersupply.com. See “Add Alternates”.

PART 3 – EXECUTION

3.01 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

- A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 18” inches apart, unless indicated otherwise. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.
 - 1. Install gutter with expansion joints at locations indicated but not exceeding 20 feet apart. Install expansion joint caps.

2. Install top mount high velocity screen hybrid leaf diverter cap on both new gutters and existing gutters to be removed and re-installed per manufacturer's specifications.
- C. Downspouts: Existing decorative downspouts and collector boxes are to remain. Join sections with manufacturer's standard telescoping joints. Align new gutter drainage inserts with existing downspout locations and connect securely to existing downspout.

3.02 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 15400 CAST IRON ROOF DRAINS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The work under this Section consists of work related to the replacement of all existing, in place roof drain assemblies. Work includes, but is not entirely limited to the following:
 - 1. Roof Drain Replacement Work:
 - a. The Contractor shall provide any required modifications to the existing concrete or steel roof deck openings to facilitate the proper installation of the new cast iron roof drains, insulation, galvanized sump pan receivers and any/all related hardware.
 - b. The Contractor shall provide and install new cast iron roof drain assemblies to replace existing drain assemblies. The new drains are to be sized to match the existing drain components. The new components include cast iron drain bowls, cast iron strainers, cast iron clamping rings, under deck clamps, galvanized sump pan receivers, and stainless-steel drain bolts.
 - c. Provide new “no-hub” clamps at all pipe joints and connections.
 - d. Ensure that all plumbing work related to this project is installed in strict compliance with all aspects of applicable building/plumbing codes.
- B. All roof drain lines are to be mechanically-cleaned for a distance of fifty (50) feet at the completion of the work. Leave all roof drains in a free-flowing condition, immediately after the installation/completion of the drain/plumbing work.

1.02 RELATED WORK

- A. Carefully examine all of the Contract Documents for requirements that affect the work of this Section. The exact scope of work of this Section cannot be fully-determined without a thorough review of all specification sections and other Contract Documents.
 - 1. Related Sections (include but are not limited to the following):
 - a. Section 02050 - Selective Demolition
 - b. Section 06100 - Rough Carpentry
 - c. Section 07220 – Thermal Insulation Components
 - d. Section 07600 – Flashings & Sheet Metal

1.03 SUBMITTALS

- A. Provide the following required product/material data:
1. Roof drain assemblies (cast iron bowls, cast iron strainers, cast iron clamping rings, stainless steel drain bolts, and related items).
 2. No hub clamps.
 3. Pipe clamps.
 4. Sump pan receivers.
 5. Pipe insulation and hard wrap PVC coverings.
 6. Pipe hanger components.
 7. Miscellaneous plumbing accessories and related items.

1.04 DELIVERY, HANDLING AND STORAGE

- A. Contractor shall comply with all recommendations of the pipe manufacturer and of applicable Technical Reports of the Cast Iron Soil Pipe Institute for handling and installation.
- B. All work and materials shall be protected at all times. The Contractor shall make good all damage caused by his workmen either directly or indirectly.
- C. All work shall be installed and completed by a licensed plumber. All work shall be in accordance with the State Plumbing Code and the best trade practices.
- D. The Contractor shall do all carting, handling, and hoisting for his materials and equipment in a safe and satisfactory manner. Any damage resulting from the work of this section shall be repaired or paid-for by the Contractor, and at no additional cost to the Owner.

1.05 CODES AND STANDARDS

- A. Perform all plumbing work in strict compliance with the current publication of the applicable building/plumbing Code.

1.06 COORDINATION

- A. Work related to the installation of new roof drains shall be performed prior to or in conjunction with the actual removal and replacement of the surrounding roofing system.
- B. The Contractor will not be permitted to install new roof drains after the installation of the new roofing system. All new roofing work shall be installed onto the drain rims of the new roof drains, not cut-into the roof after the new roofing system has been installed.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Roof drains shall be Smith #1010 as manufactured by the Smith Manufacturing Co., Montgomery, Alabama or approved equivalent product. Provide all necessary companion accessories, including, but not limited to the following:
 - 1. Cast iron drain bodies.
 - 2. Cast iron domes.
 - 3. Under deck clamps.
 - 4. Galvanized, sump-pan receivers (as required).
 - 5. Bolted clamping rings.
 - 6. Stainless-steel drain bolts.
- B. Pipe Joints: Provide “no hub” clamps as manufactured by Ideal Inc.

PART 3 - EXECUTION

3.01 DRAIN INSTALLATION

- A. Provide and install new roof drains flush with the height of the surrounding roof decking.
- B. Provide and install new galvanized sump pans at the location of all new roof drains located through the roof deck.
- C. Provide and install all required roof drain supports at drain locations.
- D. Provide new “no hub” connections at junctures at pipe joints. Ensure a watertight connection between the roof drain bowls and drainage piping.
- E. Install new roof drains in accordance with the manufacturer's recommendations, ensuring the flange is flush with the roof deck and all compression seal connections are proper to create a positive watertight connection with the drain leader piping.
- F. At the completion of the Work, and in the presence of the Owner (or their designated representative) mechanically-clean all roof drains for a distance of at least fifty (50) feet. Ensure that all new drains are free flowing, without accumulated debris or other impediments.

END OF SECTION

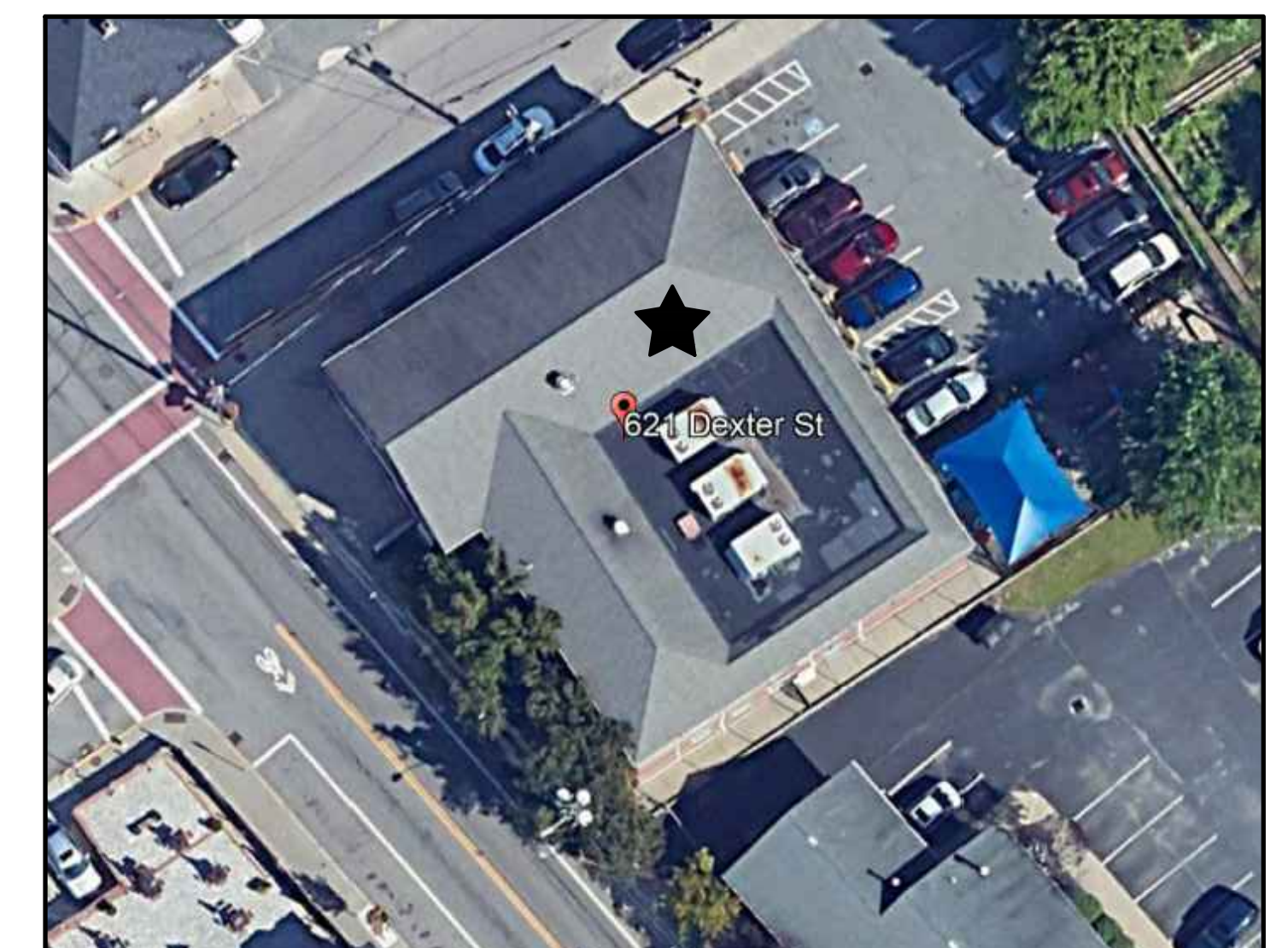
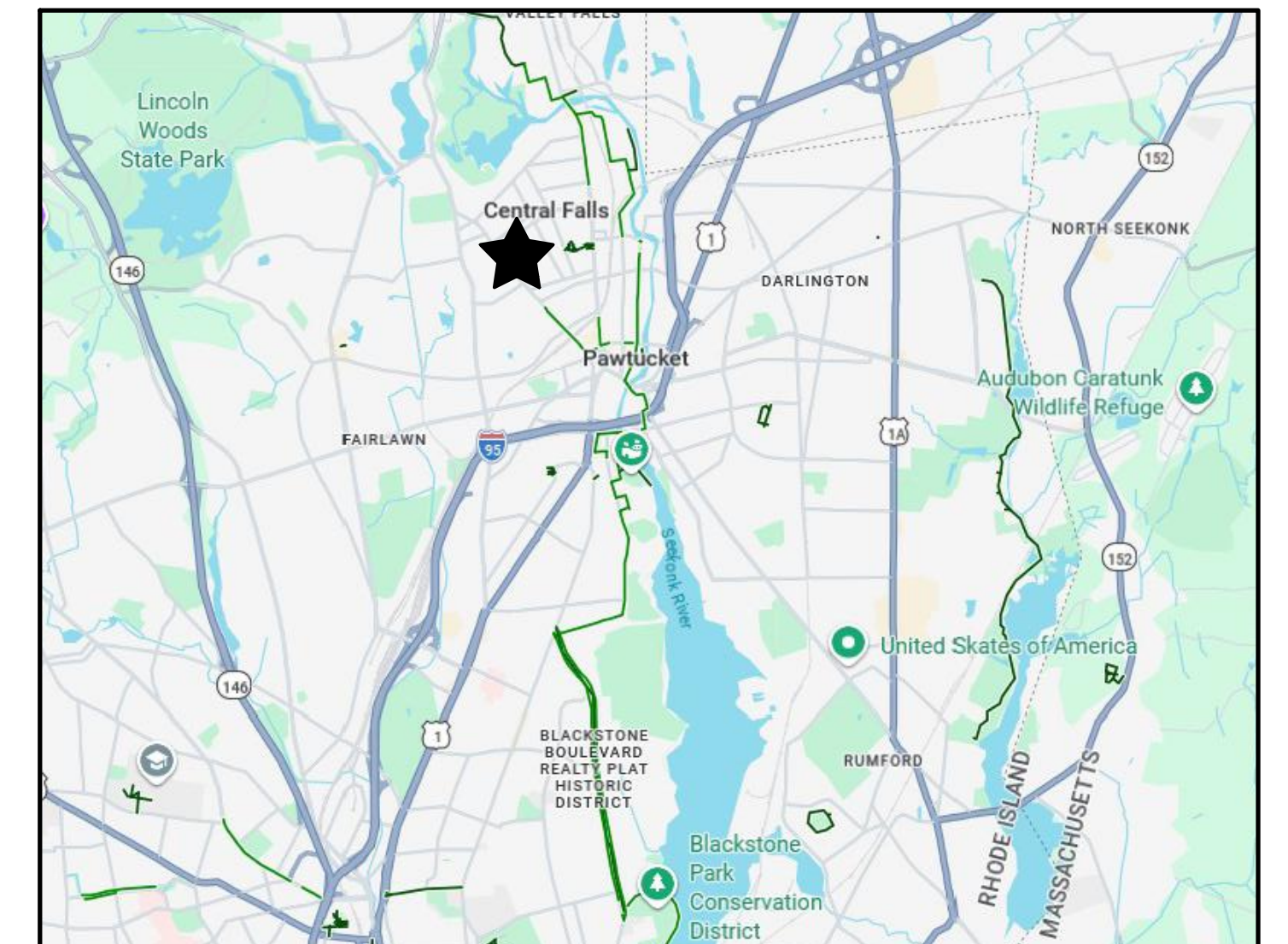
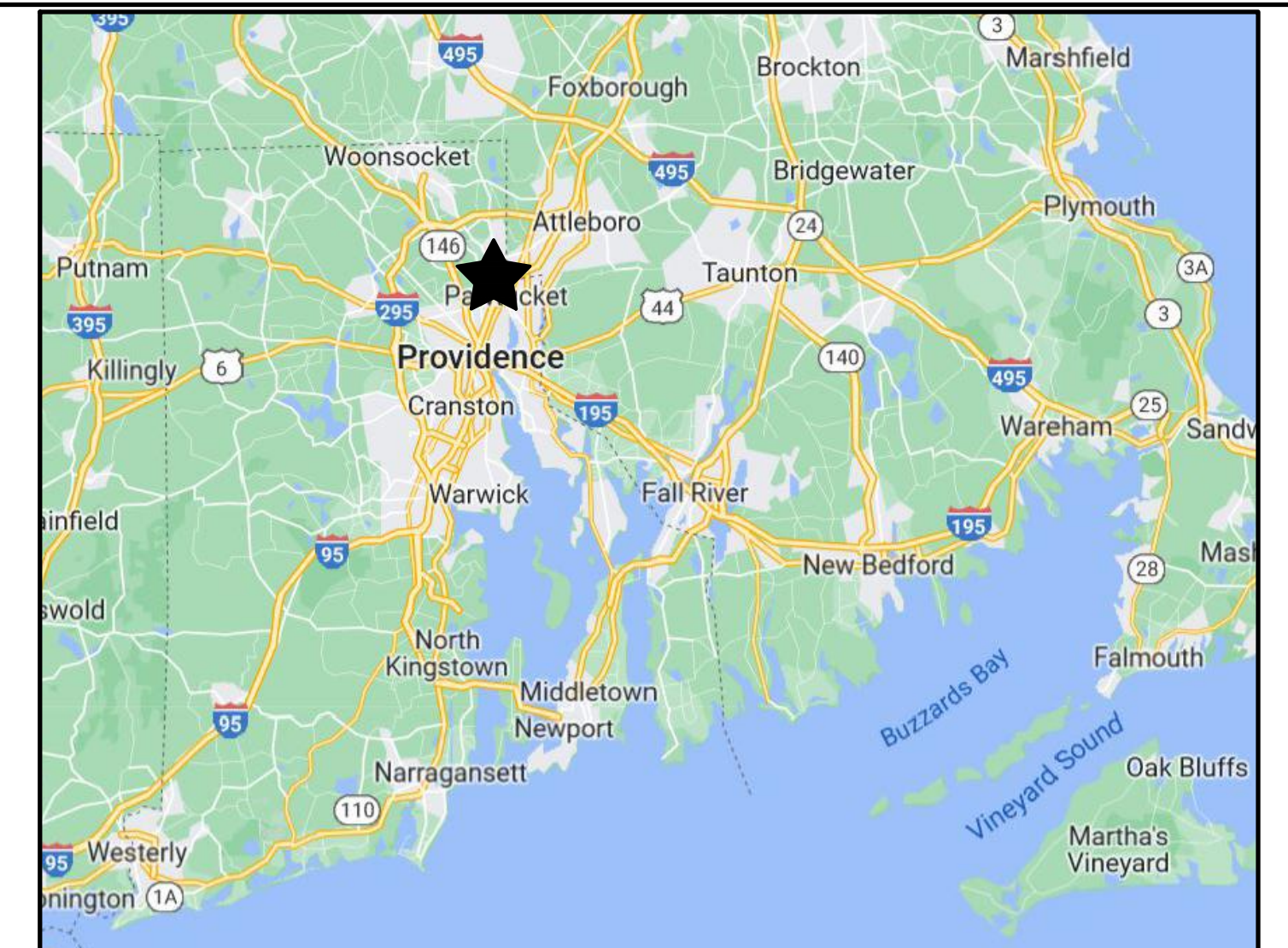


CHILDREN'S FRIEND, DEXTER STREET ROOF RESTORATION AND SHINGLE REPLACEMENT

621 Dexter Street
Central Falls, RI 02863

September 10, 2026

ISSUED FOR CONTRACTOR BIDDING
NOT TO BE USED FOR CONSTRUCTION



Project Location

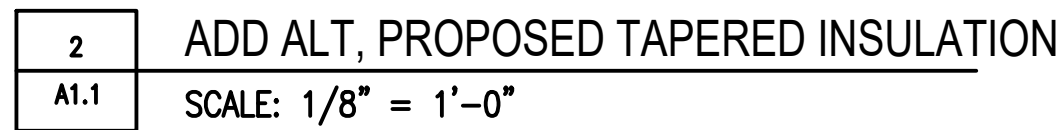
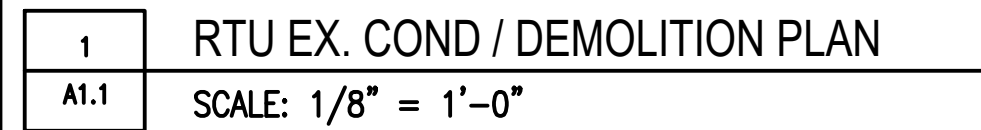
Drawing List

A1.1	EX. CONDITIONS / NOTES
A2.1	PENETRATION/PERIMETER DETAILS

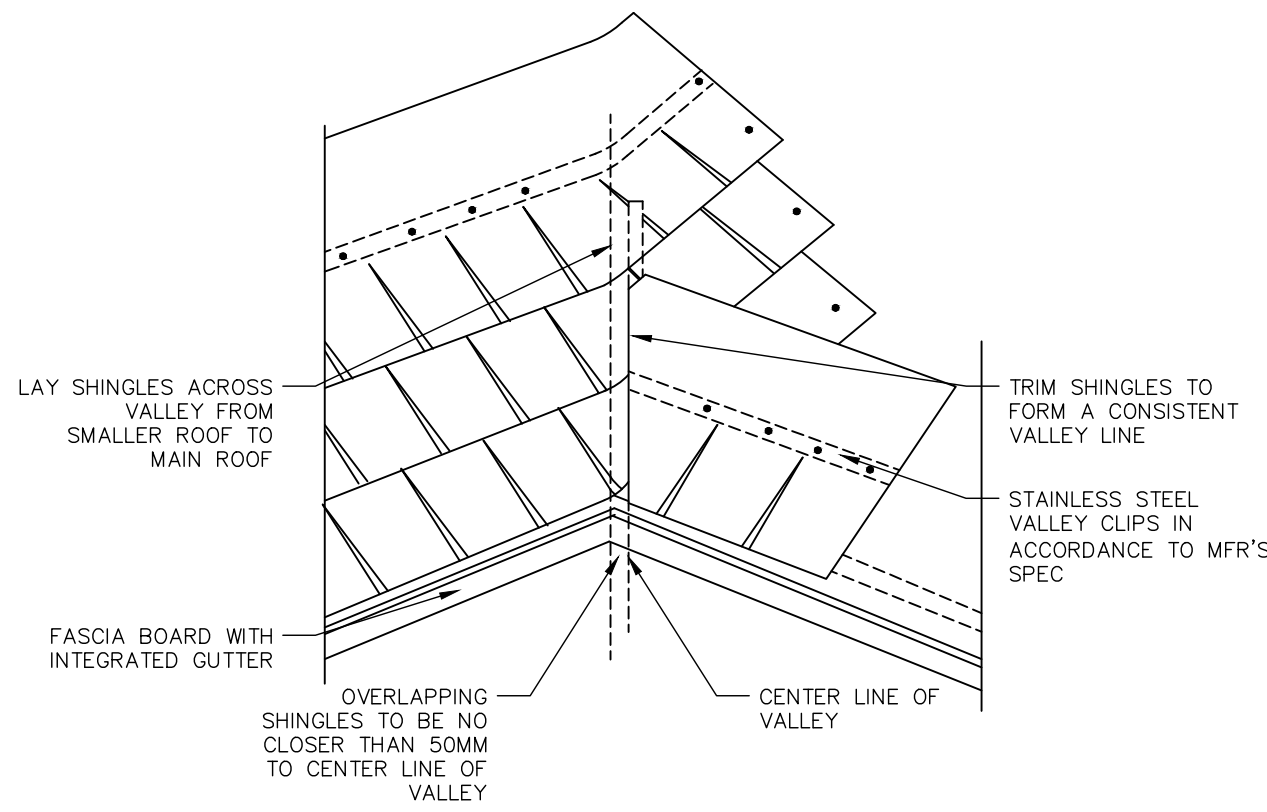
The Client shall not reuse or make or permit to be made any modification to the drawings and specifications without the prior written authorization of the Consultant. The Client agrees to waive any claim against the Consultant arising from any unauthorized transfer, reuse or modification of the drawings and specifications.

The Client is aware that differences may exist between the electronic files delivered and the printed hard-copy construction documents. In the event of a conflict between the signed or sealed hard-copy construction documents prepared by the Consultant and electronic files, the signed or sealed hard-copy construction documents shall govern.

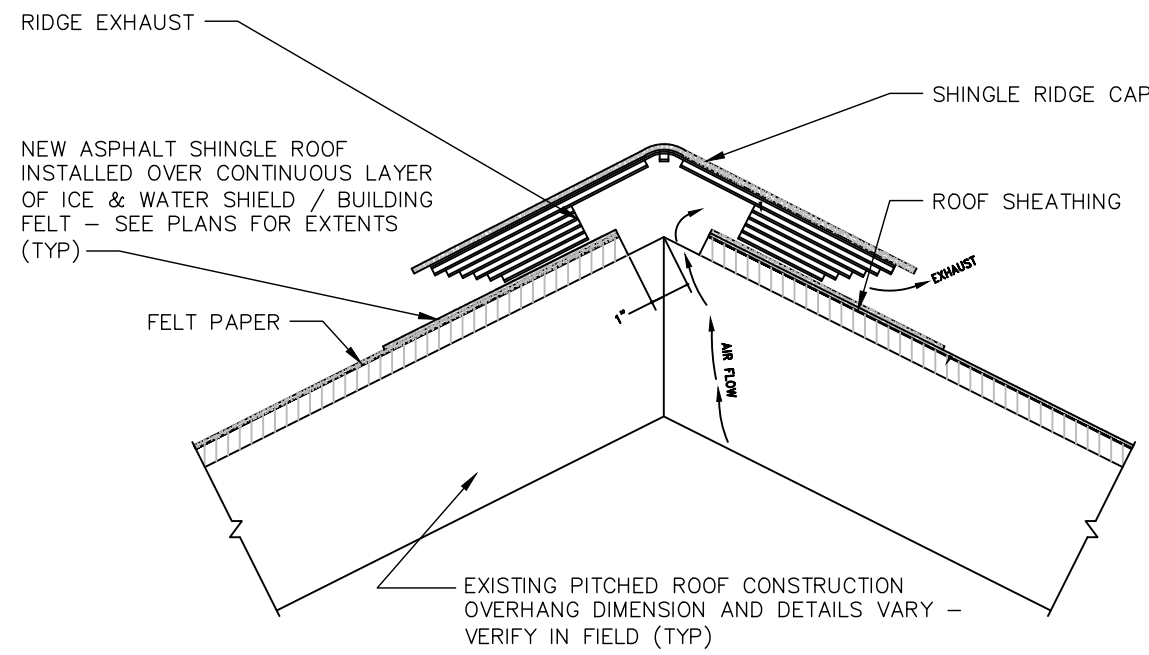
In addition, the Client agrees, to the fullest extent permitted by law, to indemnify and hold harmless the Consultant, its officers, directors, employees and subconsultants (collectively, Consultant) against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any changes made by anyone other than the Consultant or from any transfer or reuse of the electronic files without the prior written consent of the Consultant.



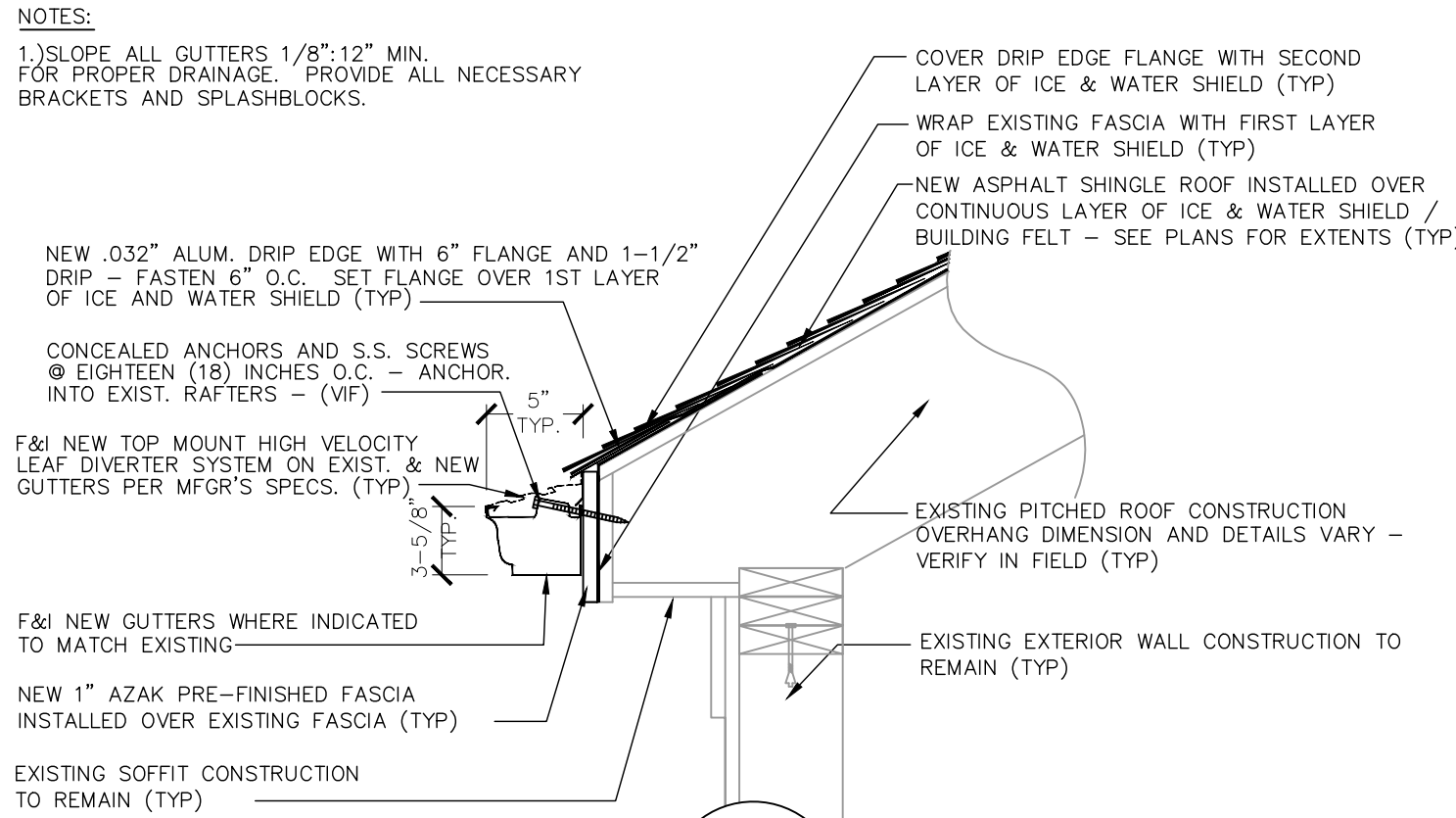
A1.1



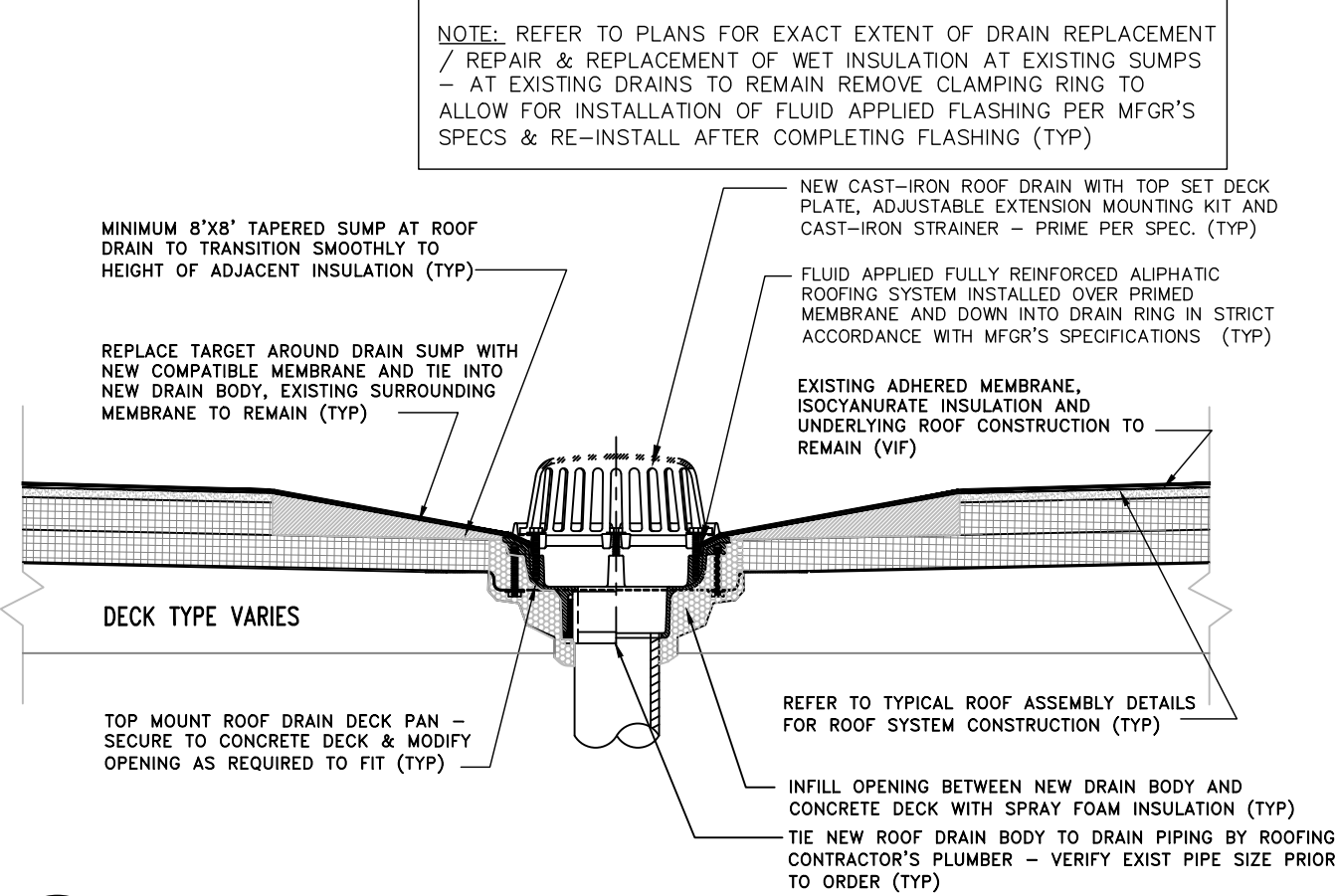
1 ASPHALT SHINGLE VALLEY DETAIL
A2.1 SCALE: N.T.S.



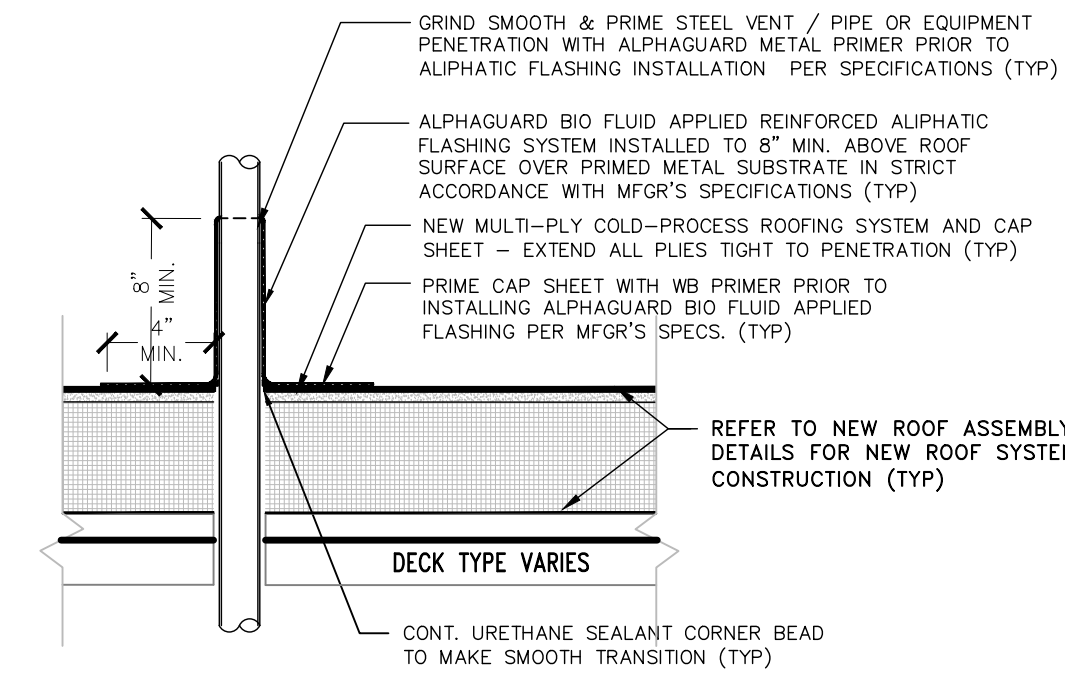
2 ASPHALT SHINGLE RIDGE DETAIL
A2.1 SCALE: N.T.S.



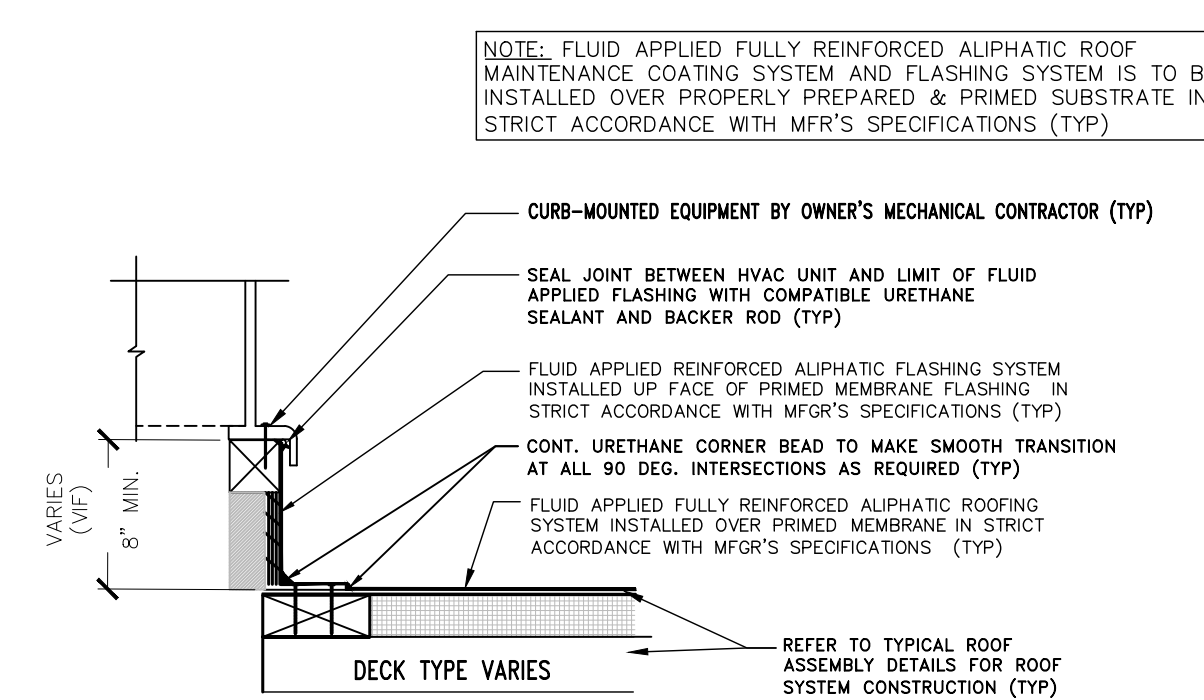
3 ASPHALT SHINGLE/GUTTER DETAIL
A2.1 SCALE: N.T.S.



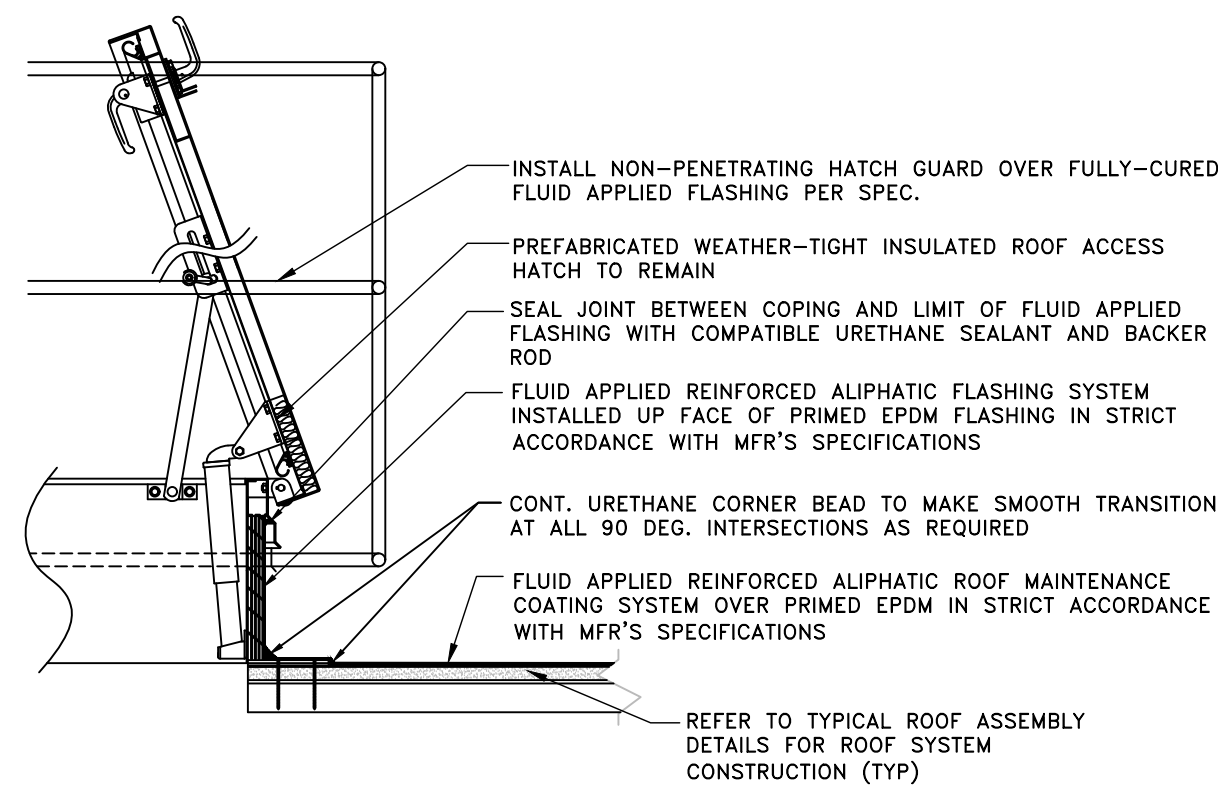
4 CAST IRON ROOF DRAIN FLUID APPLIED FLASHING DETAIL
A2.1 N.T.S.



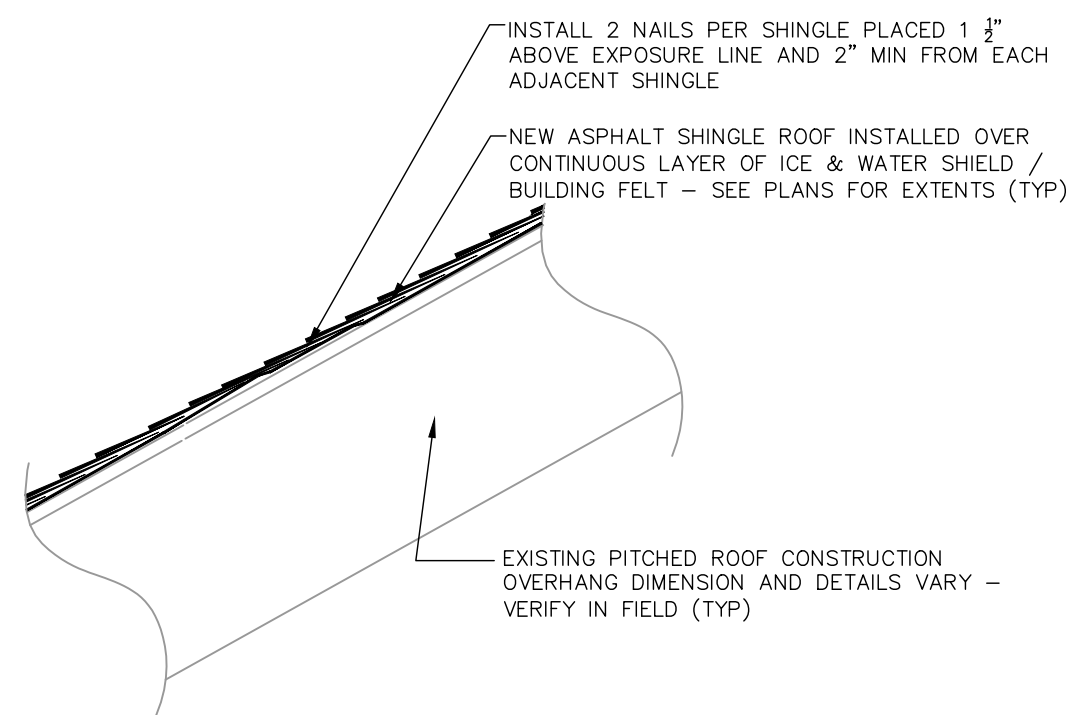
5 TYPICAL VENT / PIPE FLASHING DETAIL
A2.1 N.T.S.



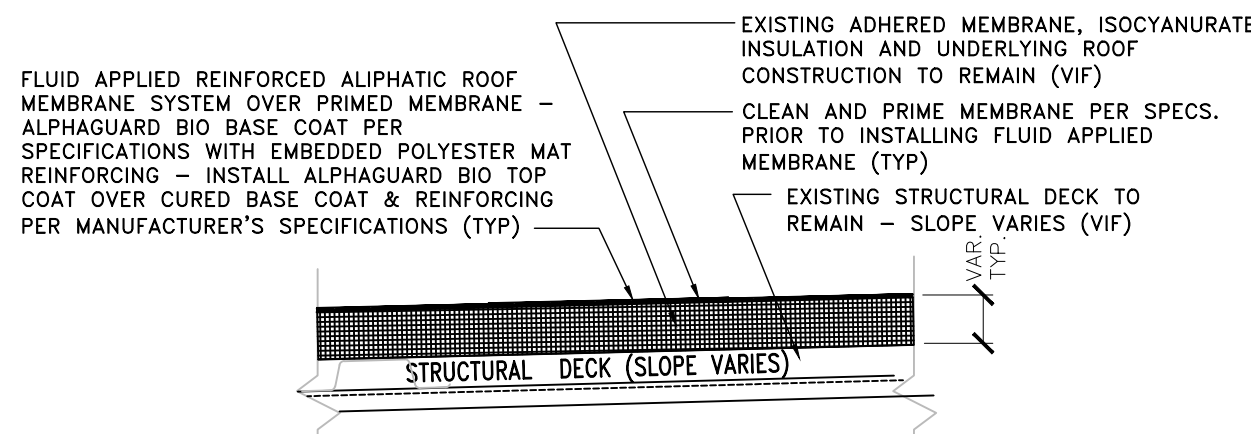
6 FLUID APPLIED FLASHING DETAIL AT HVAC CURB
A2.1 N.T.S.



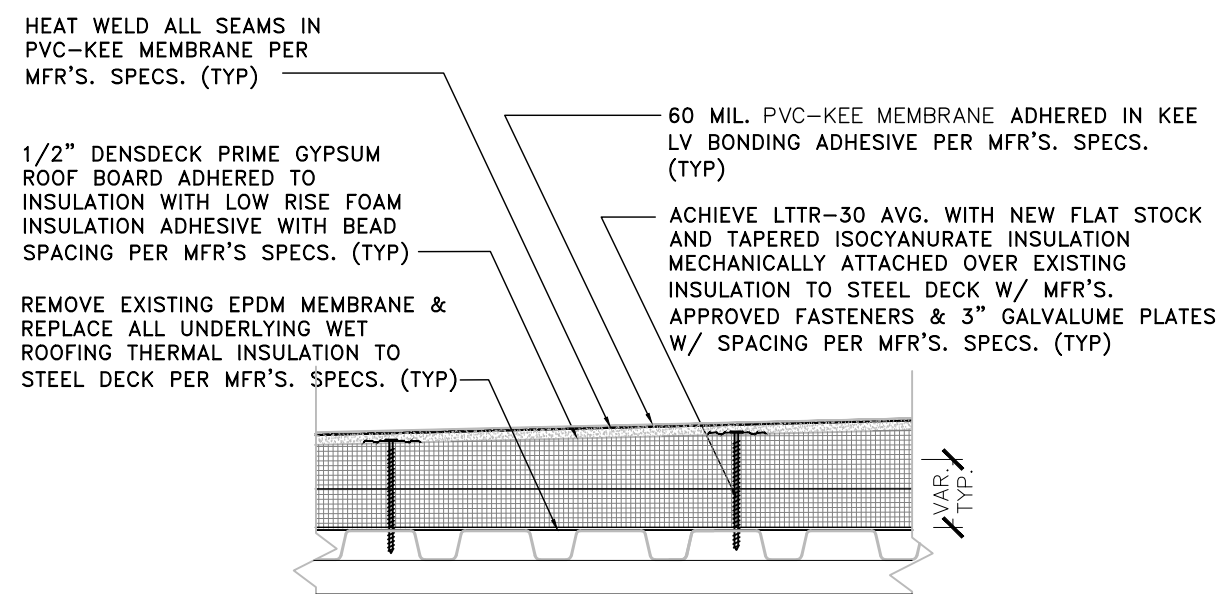
7 FLUID APPLIED FLASHING DETAIL AT EXIST. ROOF HATCH
A2.1 N.T.S.



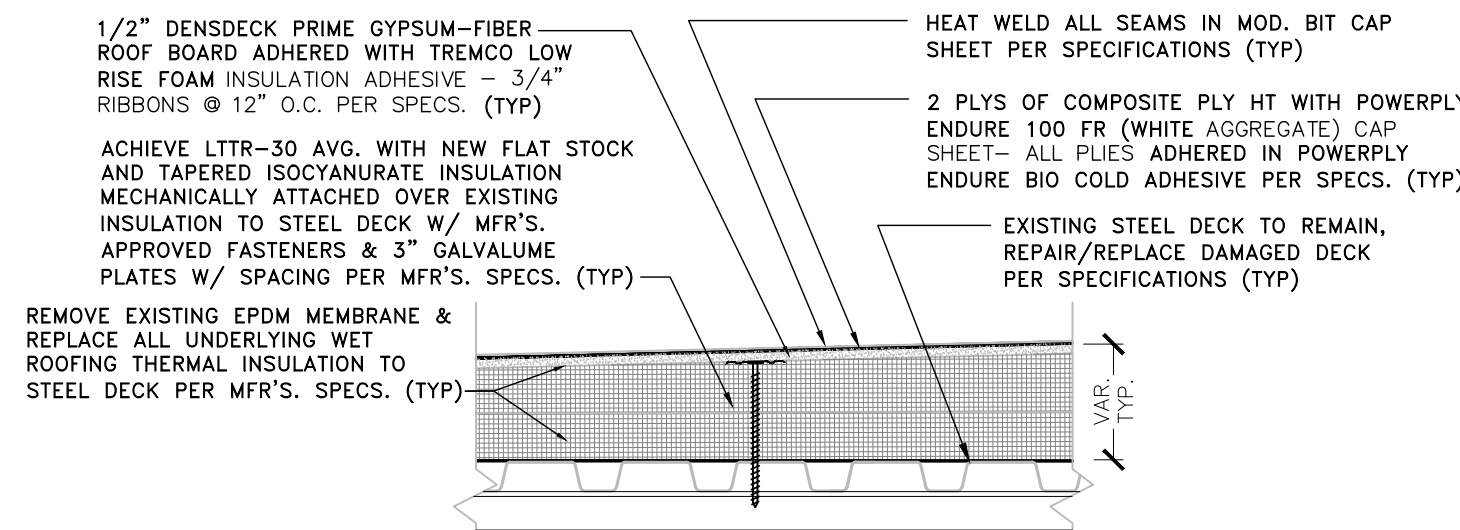
BASE BID- ASPHALT SHINGLE ROOF CONSTRUCTION
NTS



BASE BID - EPDM ROOF RESTORATION
FM ROOFNAV ASSEMBLY - N/A - ROOF MAINTENANCE COATING



ADD ALTERNATE #1: PVC-KEE ADHERED
FM 4474 TESTED TO 60 PSF (W/ ZONE 2&3 ENHANCEMENTS) & UL CLASS A



ADD ALTERNATE #2: POWERPLY ENDURE 100 FR
FM 4470/4474 TESTED PER NEMO ASSEMBLY S-85 (52.5 PSF)

ALL PRODUCTS LISTED CONFORM TO THE SPECIFIED ROOF RESTORATION SYSTEM AND CONSTITUTE THE BASIS OF DESIGN. ALTERNATIVE PRODUCTS MUST BE APPROVED AS EQUAL AND MEET THE MINIMUM STANDARDS LISTED IN THE SPECIFICATIONS AND MEET OR EXCEED THE REQUIREMENTS OF THE RESTORATION SYSTEM LISTED ABOVE.

NOTES:

- EXISTING WOOD BLOCKING AT PERIMETERS SHALL BE INSPECTED BY THE ONSITE INSPECTOR. SALVAGEABLE BLOCKING IS TO RECEIVE ADDITIONAL FASTENING, PER FM 1-49, BY THE CONTRACTOR.
- WOOD BLOCKING & INSULATION QUANTITIES DEPICTED ON THE DRAWINGS ARE CONCEPTUAL, IN-NATURE - AND DO NOT NECESSARILY-DEPICT THE EXACT QUANTITY/THICKNESS OF MATERIALS TO BE INSTALLED. BIDDERS ARE RESPONSIBLE FOR VERIFYING ALL QUANTITIES/THICKNESSES, PRIOR-TO BID-SUBMISSION.
- ADDITIONAL QUANTITIES OF NEW PRESSURE-TREATED FASCIA-BOARDS ARE REQUIRED TO BE INSTALLED BY THE CONTRACTOR - TO FLUSH-OUT THE FASCIA-DETAIL, AS CONCEPTUALLY-SHOWN.
- ALL WOOD BLOCKING IS TO BE COVERED WITH HIGH-TEMP, POLYMER-MODIFIED SELF-ADHERING UNDERLAYMENT, PRIOR-TO THE INSTALLATION OF NEW SHEET-METAL FLASHING COMPONENTS. PROVIDE FULL/COMPLETE COVERAGE OVER ALL WOOD BLOCKING MATERIALS.

REVISIONS

REV	DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	AUG 21, 2026
2	ISSUED FOR BIDDING	SEP 10, 2026
3		
4		

CONSULTANTS

MASSACHUSETTS PE #53127

Whitecap
Engineering, LLC
Engineering Design
&
Construction Management Services

18 Perrywinkle Rd.
Wakefield, RI 02879
Phone: (401) 741-5141
info@WhitecapEngineering.com

CHILDREN'S FRIEND
621 DEXTER STREET
ROOF PROJECT

621 DEXTER ST.
CENTRAL FALLS, RI 02863

PREPARED FOR
CHILDREN'S
FRIEND

621 DEXTER ST
CENTRAL FALLS, RI 02863

ROOF DETAILS

DATE: AUG 15, 2026

SCALE: AS SHOWN

PROJECT NO.: 2026 15

CHECKED BY: GR

A2.1

"General Decision Number: RI20260001 07/30/2026

State: Rhode Island

Construction Types: Building, Heavy and Highway

Counties: Rhode Island Counties of
Bristol, Kent, Newport, Providence and
Washington

Includes Marine Construction Projects

Modification Number	Publication Date
2	01/30/2026
3	05/18/2026
4	07/30/2026

ASBE0006-006 09/01/2024

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER (INCLUDES PREPARATION, WETTING, STRIPPING, REMOVAL SCRAPPING, VACUUMING, BAGGING & DISPOSING OF ALL INSULATION MATERIALS, WHETHER THEY CONTAIN ASBESTOS OR NOT, FROM MECHANICAL SYSTEMS).....	\$ 49.91	36.63

ASBE0006-008 09/01/2024

	Rates	Fringes
ASBESTOS WORKER/INSULATOR (INCLUDES APPLICATION OF ALL INSULATING MATERIALS, PROTECTIVE COVERINGS, COATINGS & FINISHES TO ALL TYPES OF MECHANICAL SYSTEMS).....	\$ 49.91	36.63

BOIL0029-001 01/01/2025

	Rates	Fringes
BOILERMAKER.....	\$ 50.62	28.82

BRRIO003-001 06/01/2022

	Rates	Fringes
BRICKLAYER, STONEMASON, POINTER, CAULKER & CLEANER..	\$ 46.86	29.14

BRI0003-002 09/01/2022		
	Rates	Fringes
MARBLE SETTER, TERRAZZO WORKER & TILE SETTER.....	\$ 46.54	30.34

BRI0003-003 09/01/2022		
	Rates	Fringes
MARBLE, TILE & TERRAZZO FINISHER.....	\$ 38.78	29.61

CARP0330-001 06/02/2025		
	Rates	Fringes
DIVER (WHEN NOT DIVING OR TENDING THE DIVER, THE DIVER AND DIVER TENDER SHALL RECEIVE THE PILEDRIVER RATE. DIVER TENDERS SHALL RECEIVE \$1.00 PER HOUR ABOVE THE PILE DRIVER RATE WHEN TENDING THE DIVER.)		
.....	\$ 60.83	30.50
DIVER TENDER (WHEN NOT DIVING OR TENDING THE DIVER, THE DIVER AND DIVER TENDER SHALL RECEIVE THE PILEDRIVER RATE. DIVER TENDERS SHALL RECEIVE \$1.00 PER HOUR ABOVE THE PILE DRIVER RATE WHEN TENDING THE DIVER.)		
.....	\$ 48.68	30.50
CARPENTER: INCLUDES SOFT FLOOR LAYER (WORK ON FREE-STANDING STACKS, CONCRETE SILOS & PUBLIC UTILITY ELECTRICAL POWER HOUSES, WHICH ARE OVER 35 FT. IN HEIGHT WHEN CONSTRUCTED: \$.50 PER HOUR ADDITIONAL. WORK ON EXTERIOR CONCRETE SHEAR WALL GANG FORMS, 45 FT. OR MORE ABOVE GROUND ELEVATION OR ON SETBACK: \$.50 PER HOUR ADDITIONAL.)		
.....	\$ 47.88	30.50
PILEDRIVER (WORK ON FREE-STANDING STACKS, CONCRETE SILOS & PUBLIC UTILITY ELECTRICAL POWER HOUSES, WHICH ARE OVER 35 FT. IN HEIGHT WHEN CONSTRUCTED: \$.50 PER HOUR ADDITIONAL. WORK ON EXTERIOR CONCRETE SHEAR WALL GANG FORMS, 45 FT. OR MORE ABOVE GROUND ELEVATION OR ON SETBACK: \$.50 PER HOUR ADDITIONAL. THE DESIGNATED PILEDRIVER, KNOWN AS THE ""MONKEY"": \$1.00 PER HOUR ADDITIONAL.....		
.....	\$ 41.53	29.35
WELDER (WORK ON FREE-STANDING STACKS, CONCRETE SILOS & PUBLIC UTILITY ELECTRICAL POWER HOUSES, WHICH ARE OVER 35 FT. IN HEIGHT WHEN CONSTRUCTED: \$.50 PER HOUR ADDITIONAL. WORK ON EXTERIOR CONCRETE SHEAR WALL GANG FORMS, 45 FT. OR MORE ABOVE GROUND ELEVATION OR ON SETBACK: \$.50 PER HOUR ADDITIONAL.)		
.....	\$ 48.68	30.50

CARP1121-002 04/21/2025		
	Rates	Fringes

MILLWRIGHT.....	\$ 45.72	31.50
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ELEC0099-002 06/01/2025

	Rates	Fringes
ELECTRICIAN (WORK OF A HAZARDOUS NATURE, OR WHERE THE WORK HEIGHT IS 30 FT. OR MORE FROM THE FLOOR, EXCEPT WHEN WORKING OSHA-APPROVED LIFTS: 20% PER HOUR ADDITIONAL. WORK IN TUNNELS BELOW GROUND LEVEL IN COMBINED SEWER OUTFALL: 20% PER HOUR ADDITIONAL.).....	\$ 56.11	24.74
TELEDATA SYSTEM INSTALLER (WORK OF A HAZARDOUS NATURE, OR WHERE THE WORK HEIGHT IS 30 FT. OR MORE FROM THE FLOOR, EXCEPT WHEN WORKING OSHA-APPROVED LIFTS: 20% PER HOUR ADDITIONAL. WORK IN TUNNELS BELOW GROUND LEVEL IN COMBINED SEWER OUTFALL: 20% PER HOUR ADDITIONAL.).....	\$ 42.09	19.71

ELEV0039-001 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC (ADDITIONAL FRINGE TO BE PAID A. PAID HOLIDAYS: NEW YEARS DAY; MEMORIAL DAY; INDEPENDENCE DAY; LABOR DAY; VETERANS' DAY; THANKSGIVING DAY; THE FRIDAY AFTER THANKSGIVING DAY; AND CHRISTMAS DAY. B. EMPLOYER CONTRIBUTES 8% BASIC HOURLY RATE FOR 5 YEARS OR MORE OF SERVICE OF 6% BASIC HOURLY RATE FOR 6 MONTHS TO 5 YEARS OF SERVICE AS VACATION PAY CREDIT.).....	\$ 64.52	38.44

ENGI0057-001 12/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 1: CRANES, LIGHTERS, BOOM TRUCKS AND DERRICKS. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$ 2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL.		

TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 51.30 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER
TREATMENT PLANTS, PUMPING STATIONS, TUNNELS,
CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES,
SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION
WORK: GROUP 2: DIGGING MACHINE, ROSS CARRIER,
LOCOMOTIVE, HOIST, ELEVATOR, BIDWELL-TYPE MACHINE,
SHOT & WATER BLASTING MACHINE, PAVER, SPREADER,
GRADERS, FRONT END LOADER (3 YDS. AND OVER),
VIBRATORY HAMMER & VACUUM TRUCK, ROADHEADERS,
FORKLIFTS, ECONOMOBILE TYPE EQUIPMENT, TUNNEL
BORING MACHINES, CONCRETE PUMP AND ON SITE CONCRETE
PLANTS. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET
AND OVER + \$ 2.00; 180 FEET AND OVER + \$ 3.00;
210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$
5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND
OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400
FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW
YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY
FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY,
VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY
EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A
HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.)
(HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL.

TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 49.30 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER
TREATMENT PLANTS, PUMPING STATIONS, TUNNELS,
CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES,
SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION
WORK: GROUP 3: OILERS ON CRANES. (BOOM LENGTHS,
INCLUDING JIBS: 150 FEET AND OVER + \$ 2.00; 180
FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$
4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND
OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350
FEET AND OVER + \$ 9.00; 400 FEET AND OVER +
\$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY,
PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY
DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY,
THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO
WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS
SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK:

\$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK:
\$5.00 PER HOUR ADDITIONAL.).....\$ 44.92 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER
TREATMENT PLANTS, PUMPING STATIONS, TUNNELS,
CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES,
SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION
WORK: GROUP 4: OILER ON CRAWLER BACKHOE. (BOOM
LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$
2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND

OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.) ...\$ 42.07 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 5: BULLDOZER, BOBCATS, SKID STEER LOADER, TRACTOR, SCRAPER, COMBINATION LOADER BACKHOE, ROLLER, FRONT END LOADER (LESS THAN 3 YDS.), STREET AND MOBILE-POWERED SWEEPER (3-YD. CAPACITY), 8-FT. SWEEPER MINIMUM 65 HP). (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 48.35 29.95

POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 6: WELL-POINT INSTALLATION CREW. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$ 2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK:

\$5.00 PER HOUR ADDITIONAL.).....\$ 39.15 POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 7: UTILITY ENGINEERS AND SIGNAL PERSONS. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$ 2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL.	29.95
TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 33.15 POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 8: HEATER, CONCRETE MIXER, STONE CRUSHER, WELDING MACHINE, GENERATOR AND LIGHT PLANT, GAS AND ELECTRIC DRIVEN PUMP AND AIR COMPRESSOR. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$ 2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL.	29.95
TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 45.00 POWER EQUIPMENT OPERATOR: POWER PLANTS, SEWER TREATMENT PLANTS, PUMPING STATIONS, TUNNELS, CAISSONS, PIERS, DOCKS, BRIDGES, WIND TURBINES, SUBTERRANEAN & OTHER MARINE AND HEAVY CONSTRUCTION WORK: GROUP 9: BOAT & TUG OPERATOR. (BOOM LENGTHS, INCLUDING JIBS: 150 FEET AND OVER + \$ 2.00; 180 FEET AND OVER + \$ 3.00; 210 FEET AND OVER + \$ 4.00; 240 FEET AND OVER + \$ 5.00; 270 FEET AND OVER + \$ 7.00; 300 FEET AND OVER + \$ 8.00; 350 FEET AND OVER + \$ 9.00; 400 FEET AND OVER + \$10.00); (PAID HOLIDAYS: NEW YEAR'S DAY,	29.95

PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY, CHRISTMAS DAY. ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....	\$ 48.92	29.95
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ENGI0057-003 12/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 1: CRANES, LIGHTERS, BOOM TRUCKS AND DERRICKS. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$ 2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270 FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$ 8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....	\$ 50.57	29.95
POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 2: DIGGING MACHINE, ROSS CARRIER, LOCOMOTIVE, HOIST, ELEVATOR, BIDWELL-TYPE MACHINE, SHOT & WATER BLASTING MACHINE, PAVER, SPREADER, FRONT END LOADER (3 YDS. AND OVER), VIBRATORY HAMMER AND VACUUM TRUCK. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$ 2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270 FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$ 8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.)		

.....\$ 48.57 POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 3: TELEHANDLER EQUIPMENT, FORKLIFT, CONCRETE PUMP & ON-SITE CONCRETE PLANT. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$ 2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270 FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$ 8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 48.35	29.95
POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 4: FIREMAN & OILER ON CRANES. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$ 2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270 FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$ 8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 44.35	29.95
POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION: GROUP 5: OILER ON CRAWLER BACKHOE. (BOOM LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$ 2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270 FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$ 8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK: \$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00 PER HOUR ADDITIONAL.).....\$ 41.50	29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION:
GROUP 6: BULLDOZER, SKID STEER LOADERS, BOBCATS,
TRACTOR, GRADER, SCRAPER, COMBINATION LOADER
BACKHOE, ROLLER, FRONT END LOADER (LESS THAN 3
YDS.), STREET AND MOBILE POWERED SWEEPER (3 YDS.
CAPACITY), 8-FT. SWEEPER (MINIMUM 65 HP). (BOOM
LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$
2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND
OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270
FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$
8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND
OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY,
PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY
DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY,
THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE
WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY
FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK:
\$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00
PER HOUR ADDITIONAL.).....\$ 47.65 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION:
GROUP 7: WELL POINT INSTALLATION CREW. (BOOM
LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$
2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND
OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270
FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$
8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND
OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY,
PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY
DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY,
THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE
WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY
FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK:
\$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00
PER HOUR ADDITIONAL.).....\$ 47.22 29.95

POWER EQUIPMENT OPERATOR: BUILDING CONSTRUCTION:
GROUP 8: HEATER, CONCRETE MIXER, STONE CRUSHER,
WELDING MACHINE, GENERATOR FOR LIGHT PLANT, GAS AND
ELECTRIC DRIVEN PUMP & AIR COMPRESSOR. (BOOM
LENTHS, INCLUDING JIBS: 150 FT. AND OVER: + \$
2.00; 180 FT. AND OVER: + \$ 3.00; 210 FT. AND
OVER: + \$ 4.00; 240 FT. AND OVER: + \$ 5.00; 270
FT. AND OVER: + \$ 7.00; 300 FT. AND OVER: + \$
8.00; 350 FT. AND OVER: + \$ 9.00; 400 FT. AND
OVER: + \$10.00) (PAID HOLIDAYS: NEW YEAR'S DAY,
PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY
DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY,
THANKSGIVING DAY & CHRISTMAS DAY. A: ANY EMPLOYEE
WHO WORKS 3 DAYS IN THE WEEK IN WHICH A HOLIDAY
FALLS SHALL BE PAID FOR THE HOLIDAY.) (HAZMAT WORK:
\$2.00 PER HOUR ADDITIONAL. TUNNEL/SHAFT WORK: \$5.00

PER HOUR ADDITIONAL.).....	\$ 44.54	29.95
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ENGI0057-005 12/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 1: CRANES, PILE DRIVERS, LIGHTERS, BOOM TRUCKS, HOISTS, DERRICKS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....	\$ 46.45	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 2: DIGGING MACHINES, EXCAVATORS, LOCOMOTIVES, JOHN HENRY'S, DIRECTIONAL DRILLING MACHINES, COLD PLANERS, RECLAIMERS, PAVERS, SPREADERS, GRADERS, FRONT-END LOADERS (3YDS & OVER), VACUUM TRUCK, DRILL/BORING MACHINE OPERATORS, VERMEER SAW, WATER BLASTER, HYDRAULIC-DEMOLITION ROBOT, ROSS CARRIERS, CONCRETE PUMP OPERATORS, ASPHALT/MATERIAL TRANSFER MACHINES, ROTATING TELEHANDLERS, SPMT TYPE EQUIPMENT. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.) DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.....	\$ 44.45	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 3: WELLPOINT INSTALLATION AND DRILL/BORING MACHINE ASSISTANTS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....	\$ 39.15	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE		

INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 4: UTILITY ENGINEERS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....\$ 25.75	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 5: SIGNAL PERSONS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....\$ 33.15	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 6: OILERS ON CRANES AND DECKHANDS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....\$ 39.73	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 7: COMBINATION LOADER / BACKHOES, FRONT-END LOADERS (LESS THAN 3 YDS.), FORKLIFT, BULLDOZERS, SCRAPERS, BOATS, ROLLERS, SKID STEER LOADERS (REGARDLESS OF ATTACHMENTS), STREET SWEEPERS, MECHANICS, WELDERS, OPERATORS IN MATERIALS YARDS, SHOPS AND GARAGES. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....\$ 43.43	29.95
POWER EQUIPMENT OPERATOR: HIGHWAY CONSTRUCTION PROJECTS; WATER AND SEWERLINE PROJECTS WHICH ARE INCIDENTAL TO HIGHWAY CONSTRUCTION PROJECTS; AND BRIDGE PROJECTS THAT DO NOT SPAN WATER: GROUP 8: GAS AND ELECTRIC DRIVE HEATERS, CONCRETE MIXERS, LIGHT PLANTS, WELDING MACHINES, PUMPS AND	

COMPRESSORS. (ANY EMPLOYEE WHO WORKS THREE DAYS IN THE WEEK IN WHICH A HOLIDAY FALLS SHALL BE PAID FOR THE HOLIDAY. PAID HOLIDAYS: NEW YEAR'S DAY, PRESIDENT'S DAY, MEMORIAL DAY, JULY FOURTH, VICTORY DAY, LABOR DAY, COLUMBUS DAY, VETERANS DAY, THANKSGIVING DAY & CHRISTMAS DAY.).....	\$ 38.70	29.95
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IRON0037-001 09/16/2025		
	Rates	Fringes
IRONWORKER.....	\$ 43.03	33.53

LAB00271-001 12/03/2023		
	Rates	Fringes
LABORER (BUILDING CONSTRUCTION): GROUP 1: Laborer, Carpenter Tender, Mason Tender, Cement Finisher Tender, Scaffold Erector, Wrecking Laborer, Asbestos Removal [Non-Mechanical Systems].....	\$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 2: Asphalt Raker, Adzemen, Pipe Trench Bracer, Demolition Burner, Chain Saw Operator, Fence & Guard Rail Erector, Setter of Metal Forms for Roadways, Mortar Mixer, Pipelayer, Riprap & Dry Stonewall Builder, Highway Stone Spreader, Pneumatic Tool Operator, Wagon Drill Operator, Tree Trimmer, Barco-Type Jumping Tamper, Mechanical Grinder Operator.....	\$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 3: Pre-Cast Floor & Roof Plank Erectors.....	\$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 4: Air Track Operator, Hydraulic & Similar Self-Powered Drill, Block Paver, Rammer, Curb Setter, Powderman & Blaster.....	\$ 37.00	26.90
LABORER (BUILDING CONSTRUCTION): GROUP 5: Toxic Waste Remover.....	\$ 39.00	26.90

LAB00271-002 11/27/2022		
	Rates	Fringes
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): COMPRESSED AIR: GROUP 1:Mucking machine operator, tunnel laborer, brake person, track person, miner, grout person, lock tender, gauge tender, miner: motor person & all others in compressed air	\$ 55.40	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): COMPRESSED AIR: GROUP 2: Change house attendant, powder watchperson, top person on iron	\$ 52.93	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): COMPRESSED AIR: GROUP 3: Hazardous waste work within the ""HOT"" zone.....	\$ 42.45	24.15

LABORER (HEAVY AND HIGHWAY CONSTRUCTION): FREE AIR: GROUP 1: Grout person - pumps, brake person, track person, form mover & stripper (wood & steel), shaft laborer, laborer topside, outside motorperson, miner, conveyor operator, miner welder, heading motorperson, erecting operator, mucking machine operator, nozzle person, rodperson, safety miner, shaft & tunnel, steel & rodperson, mole nipper, concrete worker, form erector (wood, steel and all accessories), cement finisher (this type of work only), top signal person, bottom person (when heading is 50' from shaft), burner, shield operator and TBM operator.....	\$ 46.00	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): FREE AIR: GROUP 2: Change house attendant, powder watchperson	\$ 45.00	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): FREE AIR: GROUP 3: Hazardous waste work within the ""HOT"" zone.	\$ 42.45	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 1: Laborer; Carpenter tender; Cement finisher tender; Wrecking laborer; Asbestos removers [non-mechanical systems]; Plant laborer; Driller in quarries.....	\$ 33.05	24.05
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 2: Adzeperson; Asphalt raker; Barcotype jumping tamper; Chain saw operators; Concrete and power buggy operator; Concrete saw operator; Demolition burner; Fence and guard rail erector; Highway stone spreader; Laser beam operator; Mechanical grinder operator; Mason tender; Mortar mixer; Pneumatic tool operator; Riprap and dry stonewall builder; Scaffold erector; Setter of metal forms for roadways; Wagon drill operator; Wood chipper operator; Pipelayer; Pipe trench bracer	\$ 35.75	24.85
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 3: Air track drill operator; Hydraulic and similar powered drills; Brick paver; Block paver; Rammer and curb setter; Powderperson and blaster.....	\$ 36.50	24.85
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 4: Flagger & signaler.....	\$ 29.00	24.85
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): GROUP 5: Toxic waste remover	\$ 33.05	24.05
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): OPEN AIR CAISSON, UNDERPINNING WORK AND BORING CREW: BOTTOM MAN.....	\$ 41.50	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): OPEN AIR CAISSON, UNDERPINNING WORK AND BORING CREW: TOP MAN & LABORER.....	\$ 35.60	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): TEST BORING: DRILLER.....	\$ 41.95	24.15
LABORER (HEAVY AND HIGHWAY CONSTRUCTION): TEST BORING: LABORER.....	\$ 41.95	24.15

PAIN0011-005 06/01/2025

	Rates	Fringes
PAINTER (BRUSH AND ROLLER).....	\$ 39.57	26.60
PAINTER (EPOXY, TANKS, TOWERS, SWING STAGE & STRUCTURAL STEEL).....	\$ 41.57	26.60
PAINTER (SPRAY, SAND & WATER BLASTING).....	\$ 42.57	26.60
PAINTER (TAPER).....	\$ 38.82	25.80
PAINTER (WALL COVERER).....	\$ 38.57	25.80

PAIN0011-006 06/01/2024

	Rates	Fringes
GLAZIER (SWING STAGE: \$1.00 PER HOUR ADDITIONAL. PAID HOLIDAYS: LABOR DAY & CHRISTMAS DAY.).....	\$ 41.63	26.15

PAIN0011-011 06/01/2024

	Rates	Fringes
PAINTER (BRIDGE WORK).....	\$ 57.85	26.40

PAIN0035-008 06/01/2011

	Rates	Fringes
SIGN PAINTER.....	\$ 24.79	13.72

PLAS0040-001 01/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (BUILDING CONSTRUCTION) (CEMENT MASON: WORK ON FREE SWINGING SCAFFOLDS UNDER 3 PLANKS WIDTH AND WHICH IS 20 OR MORE FEET ABOVE GROUND AND ANY OFFSET STRUCTURE: \$.30 PER HOUR ADDITIONAL.).....	\$ 44.75	29.10

PLAS0040-002 01/01/2025

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (HEAVY AND HIGHWAY CONSTRUCTION).....	\$ 40.45	25.30

PLAS0040-003 01/01/2025

	Rates	Fringes
PLASTERER.....	\$ 45.52	29.43

PLUM0051-002 08/25/2025

Rates	Fringes
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PLUMBERS AND PIPEFITTERS.....	\$ 54.34	34.50

ROOF0033-004 12/01/2025		
	Rates	Fringes
ROOFER.....	\$ 47.49	31.44

SFRI0669-001 04/01/2025		
	Rates	Fringes
SPRINKLER FITTER.....	\$ 53.76	33.44

SHEE0017-002 06/01/2025		
	Rates	Fringes
SHEET METAL WORKER.....	\$ 44.42	41.94

TEAM0251-001 05/01/2025		
	Rates	Fringes
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 1: PICK-UP TRUCKS, STATION WAGONS, & PANEL TRUCKS (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR (\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS (\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00 PER HOUR OVER APPLICABLE RATE.)	\$ 31.86	34.51
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 2: TWO-AXLE ON LOW BEDS (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR		

OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION;
5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE
YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE
SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR
(\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS
WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS
(\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD
MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00
PER HOUR OVER APPLICABLE RATE.)\$ 32.01 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

3: TWO-AXLE DUMP TRUCK (ADDITIONAL FRINGE TO BE
PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY,
INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND
CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY,
VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS
WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN
WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON
THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5
YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR
OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION;
5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE
YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE
SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR
(\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS
WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS
(\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD
MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00
PER HOUR OVER APPLICABLE RATE.)\$ 32.06 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

4: THREE-AXLE DUMP TRUCK (ADDITIONAL FRINGE TO BE
PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY,
INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND
CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY,
VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS
WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN
WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON
THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5
YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR
OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION;
5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE
YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE
SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR
(\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS
WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS
(\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD
MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00
PER HOUR OVER APPLICABLE RATE.)\$ 32.11 34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

5: FOUR- AND FIVE-AXLE EQUIPMENT. (ADDITIONAL
FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY,

MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR (\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS (\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00 PER HOUR OVER APPLICABLE RATE.)	\$ 32.21	34.51
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 6: LOW-BED OR BOOM TRAILER. (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR (\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS (\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00 PER HOUR OVER APPLICABLE RATE.)		
.....\$ 32.61	34.51	
TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP 7: TRAILERS WHEN USED ON A DOUBLE HOOK UP (PULLING 2 TRAILERS). (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE		

YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR (\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS (\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00 PER HOUR OVER APPLICABLE RATE.)

.....\$ 32.81

34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

8: SPECIAL EARTH-MOVING EQUIPMENT, UNDER 35 TONS.(ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR (\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS (\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00 PER HOUR OVER APPLICABLE RATE.)

.....\$ 32.31

34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

9: SPECIAL EARTH-MOVING EQUIPMENT, 35 TONS OR OVER. (ADDITIONAL FRINGE TO BE PAID: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY, VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5 YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION; 5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR (\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS (\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00 PER HOUR OVER APPLICABLE RATE.)

.....\$ 32.56

34.51

TRUCK DRIVER: HEAVY AND HIGHWAY CONSTRUCTION: GROUP

10: TRACTOR TRAILER. (ADDITIONAL FRINGE TO BE PAID:

PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY,
INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY AND
CHRISTMAS DAY, PLUS PRESIDENTS' DAY, COLUMBUS DAY,
VETERAN'S DAY & V-J DAY, PROVIDING THE EMPLOYEE HAS
WORKED AT LEAST ONE DAY IN THE CALENDAR WEEK IN
WHICH THE HOLIDAY FALLS. EMPLOYEE WHO HAS BEEN ON
THE PAYROLL FOR 1 YEAR OR MORE BUT LESS THAN 5
YEARS AND HAS WORKED 150 DAYS DURING THE LAST YEAR
OF EMPLOYMENT SHALL RECEIVE 1 WEEK'S PAID VACATION;
5 TO 10 YEARS - 2 WEEKS' PAID VACATION; 10 OR MORE
YEARS - 3 WEEK'S PAID VACATION.) (EMPLOYEES ON THE
SENIORITY LIST SHALL BE PAID A ONE HUNDRED DOLLAR
(\$100.00) BONUS FOR EVERY FOUR HUNDRED (400) HOURS
WORKED, UP TO A MAXIMUM OF FIVE HUNDRED DOLLARS
(\$500.00)) (ALL DRIVERS WORKING ON A DEFINED HAZARD
MATERIAL JOB SITE SHALL BE PAID A PREMIUM OF \$2.00
PER HOUR OVER APPLICABLE RATE.)

...\$ 32.36

34.51

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

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

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.65 per hour (or the applicable wage rate listed on this

wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than SU, UAVG, SA, or SC denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number

used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The SU identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

SU wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The SA identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the SA identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination

- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

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

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

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

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

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

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

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END OF GENERAL DECISION

"



The Identification Specialists

Analysis Report
prepared for
Environmental Consulting & Management Inc

Report Date: 9/8/2026

Project Name: Children's Friend, Dexter St

Project #: 260484

SanAir ID#: 26052979



NVLAP LAB CODE 200870-0

10501 Trade Court, North Chesterfield, Virginia 23236
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | LabReports@SanAir.com | SanAir.com



SanAir ID Number

26052979

FINAL REPORT

9/8/2026 1:54:14 PM

Name: Environmental Consulting & Management Inc
Address: 50 Kickemuit Ave
Bristol, RI 02809
Phone: 401-438-1360

Project Number: 260484
P.O. Number:
Project Name: Children's Friend, Dexter St
Collected Date: 9/4/2026
Received Date: 9/8/2026 10:10:00 AM

Dear Chad Prescott,

We at SanAir would like to thank you for the work you recently submitted. The 9 sample(s) were received on Tuesday, September 08, 2026 via FedEx. The final report(s) is enclosed for the following sample(s): 01A, 01B, 02A, 03A, 04A, 04B, 05A, 05B, 06A.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

A handwritten signature in black ink that reads "Sandra Sobrino". The signature is written in a cursive, flowing style.

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:

- 9 samples in Good condition.



SanAir ID Number

26052979

FINAL REPORT

9/8/2026 1:54:14 PM

Name: Environmental Consulting & Management Inc
Address: 50 Kickemuit Ave
Bristol, RI 02809
Phone: 401-438-1360

Project Number: 260484
P.O. Number:
Project Name: Children's Friend, Dexter St
Collected Date: 9/4/2026
Received Date: 9/8/2026 10:10:00 AM

Analyst: Hogrefe, Sarah

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic	Components		Asbestos Fibers
	Appearance	% Fibrous	% Non-fibrous	
01A / 26052979-001 Seam Sealant / Flat Roof	Black Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile
01B / 26052979-002 Seam Sealant / Flat Roof	Black Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile
02A / 26052979-003 ISO Tarpaper / Flat Roof	Black Fibrous Homogeneous	95% Cellulose	5% Other	None Detected
03A / 26052979-004 HVAC Base Sealant / Flat Roof	Black Non-Fibrous Homogeneous		100% Other	None Detected
04A / 26052979-005 Asphalt Shingle / Pitched Roof	Grey Non-Fibrous Heterogeneous	5% Glass	95% Other	None Detected
04B / 26052979-006 Asphalt Shingle / Pitched Roof	Grey Non-Fibrous Heterogeneous	5% Glass	95% Other	None Detected
05A / 26052979-007 Tarpaper / Pitched Roof	Black Fibrous Homogeneous	85% Cellulose	15% Other	None Detected
05B / 26052979-008 Tarpaper / Pitched Roof	Black Fibrous Homogeneous	85% Cellulose	15% Other	None Detected
06A / 26052979-009 Vent Pipe Sealant / Pitched Roof	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Analyst:

Approved Signatory:

Analysis Date: 9/8/2026

Date: 9/8/2026

Disclaimer and Additional Information:
Asbestos Bulk PLM EPA 600/R-93/116

This report is the sole property of the client named on the chain-of-custody (COC) submitted to SanAir Technologies Laboratory, Inc. (SanAir). Results in the report are confidential information intended only for the use by the customer listed on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The final report shall not be reproduced, except in full, without written approval of the laboratory to assure that parts of the report are not taken out of context. This report and any information contained within shall not be edited, altered, or modified in any way by any persons or agencies receiving, viewing, distributing, or otherwise possessing a copy of this final report. The laboratory reserves the right to perform amendments to any finalized report, of which shall supersede and make obsolete any previous editions. Such changes, modifications, additions, or deletions shall be effective immediately upon notice thereof, which may be given by means including but not limited to posting on the SanAir client portal website, electronic or conventional mail, or by any other means.

The information provided in this report applies only to the samples submitted and is relevant only for the date, time, and location of sampling. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client on the COC. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample(s) in the condition received at the laboratory and information provided by the client on the COC, such as: project number, project name, collection dates, P.O. number, special instructions, samples collected by, sample numbers, sample identifications, sample type, selected analysis type, flow rate, total volume or area, and start-stop times that may affect the validity of the results in this report. Samples were received in good condition unless otherwise noted on the report. When the client requires samples to be tested that deviates from a specific method or condition, all reported results may be affected by the deviation. SanAir assumes no responsibility or liability for the manner in which the results are used or interpreted.

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Samples are held for a period of 60 days. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. For NY state samples, method EPA 600/M4-82-020 is performed.

NYELAP Disclaimer:

Polarized-light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Accreditations, Certifications, and Licenses

National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 200870-0

City of Philadelphia Department of Public Health Air Management Services, Certification#ALL-460

Commonwealth of Pennsylvania Department of Environmental Protection Number 68-05397

California State Environmental Laboratory Accreditation Program Certificate Number 2915

Colorado Department of Public Health and Environment Registration Number AL-23143

Connecticut Department of Public Health Environmental Laboratory Registration Number PH-0105

Massachusetts Department of Labor Standards Asbestos Analytical Services License Number:

AA000222

State of Maine Department of Environmental Protection License Number: LB-0075

New York State Department of Health Laboratory ID: 11983

State of Rhode Island Department of Health Certification No.: PLM00126

Texas Department of State Health Services License Number: 300440

Commonwealth of Virginia Department of Professional and Occupational Regulation Number:

3333000323

State of Washington Department of Ecology Laboratory ID: C989

State of West Virginia Bureau for Public Health Analytical Laboratory Number: LT000616

Vermont Department of Health License Number: Asb-Co-An-000006

Louisiana Department of Environmental Quality AI Number 212253, LELAP Lab ID #05088



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Asbestos
Chain of Custody
Form 140, Rev 7, 10/20/2022

SanAir ID Number
26052979



Received by MN on 9/8/26 at 10:10 AM

Company: ECM Inc.		Project #: 260484	Collected by: Chad Prescott
Address: 181 Amaral Street		Project Name: Children's Friend, Dexter St	Phone #: 401-301-8494
City, St., Zip: Riverside RI 02915		Date Collected: 9/4/26	Fax #:
State of Collection: RI	Account#: 2667	P.O. Number:	Email: cprescott@ecmne.com

Bulk		Air		Soil	
ABB	PLM EPA 600/R-93/116 ☒	ABA	PCM NIOSH 7400 ☐	ABSE	PLM EPA 600/R-93/116 (Qual.) ☐
	Positive Stop ☐	ABA-2	OSHA w/ TWA* ☐	Vermiculite	
ABEPA	PLM EPA 400 Point Count ☐	ABTEM	TEM AHERA ☐	ABB	PLM EPA 600/R-93/116 ☐
ABB1K	PLM EPA 1000 Point Count ☐	ABATN	TEM NIOSH 7402 ☐	ABEPA3	PLM EPA 400 Point Count ☐
ABBEN	PLM EPA NOB** ☐	ABT2	TEM Level II ☐	ABCM	Cincinnati Method ☐
ABBCH	TEM Chatfield** ☐	Other:	☐	Dust	
ABBTM	TEM EPA NOB** ☐	New York ELAP		ABWA	TEM Wipe ASTM D-6480 ☐
ABQ	PLM Qualitative ☐	ABEPA2	NY ELAP 198.1 ☐	ABDMV	TEM Microvac ASTM D-5755 ☐
		ABENY	NY ELAP 198.6 PLM NOB ☐		
		ABBNY	NY ELAP 198.4 TEM NOB ☐		
			Positive Stop ☐	Matrix	Other ☐

** Available on 24-hr. to 5-day TAT

Water	
ABHE	EPA 100.2 ☐

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8hr TEM) ☒	12 HR ☐	1 Day ☐
	☐ 2 Days	☐ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start - Stop Time*
01A	Seam Sealant/Flat Roof				
01B	↓				
02A	ISO Tarpaper/Flat Roof				
03A	HVAC Base Sealant/Flat Roof				
04A	Asphalt Shingle/Pitched Roof				
04B	↓				
05A	Tarpaper/Pitched Roof				
05B	↓				
06A	Vent Pipe Sealant/Pitched Roof				

Relinquished by	Date	Time	Received by	Date	Time
<i>[Signature]</i>	9/4/26	3:45pm			

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of \$150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Ground and Next Day Air shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.