Contract Yr. 2017 – 2018

Rebuilding Together Orlando's "Raise The Roof" Program

Vision - A safe and healthy home for every person.

Mission - Bringing volunteers and communities together to improve the homes and lives of low-income homeowners.

TABLE OF CONTENTS

INTRODUCTION

Rebuilding Together of Central Florida Inc., d.b.a. Rebuilding Together Orlando (RTO) welcomes you, our valued Reroofing Contractor, to Bid on Re-roofing work that is part of RTO's "Raising the Roof" Program funded by the City of Orlando's Housing and Community Development Department. Raising the roof is designed to address the re-roofing needs of prequalified, low-income homeowners living in the City of Orlando.

Since 2002, Rebuilding Together Orlando (a 501 c 3 non-profit), has had the privilege of addressing the critical home repair needs of hundreds of our neighbors in Central Florida. During that time over the years, it has become obvious to us that the number one home repair issue facing low-income homeowners in Central Florida today is roof repair and replacement.

RTO's mission is, "Together we transform the lives of low-income homeowners by improving the safety and health of their homes, and revitalizing our communities". To accomplish our mission we engage the community and business partners who strive one house at a time, to improve the quality of life of those desperately in need of critical home repairs at no cost to the homeowner.

Customer service is a very important aspect of a successful organization. RTO has high expectations for our projects and expects the Contractors we hire to provide exceptional customer service delivery with a high level of respect toward our customers and their property.

GENERAL CONDITIONS AND REQUIREMENTS

Licenses and Certification – All Contractors shall submit evidence of and maintain all licenses, certifications etc. required to perform the work in the state of Florida throughout the duration of the project.

Insurance – All Contractors shall submit evidence of and maintain sufficient Workers' Compensation and General Liability insurance coverage to protect the Owner from claims throughout the duration of the project.

Respect of Persons and Property – All Contractors shall give the Owner at least 24 hours' notice before making inspections and commencing the work. The Contractor's employees shall be respectful and courteous at all times and comply with the following:

1.) No Profanity or Loud Music
2.) No unsafe conditions left overnight
3.) No parking/driving on unpaved areas
4.) Job site left broom clean (including magnet sweep) at the end of each work day.
5.) Utilize portable toilet facilities and dumpsters provided by the Contractor.

Contractor Requirements – All work performed by the Contractor shall be of the highest quality in strict accordance with the regulations of all authorities having jurisdiction, completed in a timely manner with any and all punch list and/or hazards rectified immediately upon notice.

Permits – The Contractor is responsible for all permits and applicable fees. A "Notice of Commencement" must be filed with the Clerk of Courts by Contractor, prior to commencement of work and a copy furnished to the Owner. Contractor is responsible for furnishing a copy of the Notice of Commencement to the Owner and RTO. The Contractor shall be responsible for the acts and omissions of its employees and Subcontractors and shall employ only qualified tradespersons, skilled in the job assigned.

Commencement – Contractor will notify RTO as to commencement of work. Contractors shall commence work within 5 days of receipt of Notice to Proceed and leave the job in clean and safe standings at the end of each work day.

Inspections - Work shall be inspected by The City Code Enforcement: 1) after tear-off prior to dry-in, 2) after vapor barrier installation and, 3) at final completion to be achieved within 7 business days (weather permitting) from the date of commencement.

Completion of Work - All Contractors shall agree that $150.00 a day may be deducted from final payment for each day the work is not completed past the scheduled completion date. Contractor will receive final payment on or about 2 weeks following final inspection, punch list completion, and submission of all required documents.

Change Order/Documentation - All Contractors shall inspect, contract and complete the work with no change orders except for unforeseen conditions. All proposed change order work must be approved by RTO and the Owner prior to commencement, fully documented and invoiced in accordance with the unit prices submitted on the Contractor's RTO Bid Form.

Warranties and Final Payment - Upon completion of the work all contractors shall submit proof of: 1) 5 YearWaterTightWorkmanshipWarranty2) "Manufacturer's"Standardmaterialswarranty3) Full Release of Liens from Contractor, Vendors and Subcontractors (if any), 4) Owner Authorization- Final, 5) Evidence of Punch List items completion, and 6) Satisfactory warranty work completed by any Subcontractors (if any).

Indemnification – All Contractors shall defend and hold harmless the Home Owner, RTO and its agents from and against all claims, damages, liens and expenses (including all Attorney costs arising out of the Contractor's performance of the work. Further, all Contractors fully understand that RTO makes no warrant with regard to their work and shall not be responsible for any error or deficiencies related to their work should any occur.

Safety - Adequate safety precautions shall be taken, including barricades etc., to ensure protection of all workmen, public, passersby, Owner, and Owner's property. During construction all of the work shall be done in strict accordance with Occupational Safety and Health Administration Safety Act.

Lien Releases – Final Lien Releases from all Vendors providing materials and all Subcontractors providing labor must be submitted to RTO and the Owner by the Contractor prior to receipt of final payment.

Changes in Work:

If, during the course of work, the Contractor encounters unforeseen conditions which impact the work and which could not initially be evaluated, the Contractor shall not proceed without written authorization of the designated RTO personnel. Substitutions of materials, changes in the Scope of Work, or workmanship required by these changes, which may be proposed by the Contractor, or found necessary or desirable as the Work progresses, shall be in writing with price changes given, and approved by the Owner and RTO personnel prior to implementation.

Insurance:

Insurance coverage required by RTO must be in force throughout the Contract term. Should a Contractor fail to provide acceptable evidence of current insurance within seven (7) calendar days prior to the expiration date of an insurance policy or at any time during the Contact term, RTO shall have the absolute right to terminate the contract without any further obligation to the Contractor. The Contractor shall be liable for the entire additional cost of performing the incomplete portion of the contract at the end of the time of termination.

Insurances Include:

The insurance policies that Contractor must secure are:

1. Workers' Compensation - Contractor shall provide Workers' Compensation Coverage for all employees and, in case any work is subcontracted, will require the subcontractor to provide Workers' Compensation for all its employees. The limits will be statutory for Workers' Compensation for all its employees.

2. Comprehensive General Liability - Contractor shall provide coverage for limits of not less than One Million and No/100 Dollars ($1,000,000.00) per person/per occurrence for bodily injury to, or death to one or more than one person, and not less than One Million and No/100 Dollars ($1,000.000.00) per occurrence for property damage.

3. Commercial Automobile Liability - Contractor shall provide coverage for all owned, non-owned and hired vehicles utilized in the performance of this Contract for limits of not less than One Million and No/100 Dollars ($1,000,000.00) combined single limits for bodily injury and property damage.

Specifications and Scope of Work for Roofing Contractors:

All Contractors shall comply with the following specifications throughout the performance of Roof Replacement work (see Appendix "A"):

- Section 07 1000 Preparation for Re-Roofing
- Section 07 3000 Asphalt Shingle Roofing
- Section 07 5000 Modified Bituminous Membrane Roofing
- Section 07 6200 Gutters and Downspouts (if applicable)
- Section 07 9000 Joint Sealants

All Contractors shall perform the following Scope of work throughout the performance of Roof Replacement work:

1. Attend Pre-Construction Conference, and protection of vegetation, lawns, decks, sidewalks, driveways, etc. and daily clean-up (including magnet sweep) during the work.

3. Removal and legal disposal of existing roof system(s), and replacement of damaged roof rafters and decking if applicable* and refasten all roof decking to Code.

4. Protect the home from water intrusion and damage throughout the performance of the work in the event of sudden and/or overnight rainfall.

5. Install specified roof system(s), including proper underlayment, eave, valley, rake, penetration, ventilation, pre-painted flashings (properly weather-lapped).

6. Replacement of fascia, soffit, gutters and/or downspouts if applicable*.

7. Pass any and all required Inspections and complete all Punch List items in a timely manner.

* Please refer to Bidder's Unit Prices submitted on RTO Bid Form. (Pages 8 and 9)

PREPARATION OF BIDS:

1. Bidders are expected to examine these bid forms, specifications and all instructions. Failure to do so will be at the Bidder's risk.

2. All prices and notations must be in ink or type written. No erasure permitted. Mistakes may be crossed out and corrections typed adjacent and must be initialed and dated in ink by person signing bid. All Bids must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.

3. Each Bidder shall furnish the information required on the bid form and each accompanying sheet thereof on which he/she makes an entry.

4. Unit prices for each and every item shall be clearly shown on the RTO Bid Form (pages 9 and 10).

5. Although RTO generally awards Bids based on a lowest responsive and responsible bid, RTO may choose to award multiple contracts on a "per group" or "per item" basis. Therefore, failure to submit a bid for all Unit Prices requested on the RTO Bid Form may render such Bid non-responsive.

INVITATION TO BID & INSTRUCTIONS FOR BIDDERS

YOU ARE INVITED TO SUBMIT A BID, UNDER SEAL, FOR THE FOLLOWING WORK:

Project Description: Work on this project is limited to roof replacement and associated work on Owner Occupied Residences as identified in the Specification's for Roofers section in this packet. Bid documents are being provided from Rebuilding Together Orlando (RTO) to be used in developing Bids. The Bid Documents are intended to represent items of quality level known to meet RTO's Roof Replacement requirements. While RTO endeavors to promulgate written specifications that are accurate and non-restrictive for bidding purposes, they may also reference an item by manufacturer's name and number. Bidders are cautioned that all items quoted must be in compliance with the Bid Documents and any Addenda issued.

This project is subject to financial assistance from a Community Development Block Grant from the City of Orlando in the state of Florida. Bidders are advised to carefully review all SUPPLEMENTAL CONDITIONS / SPECIAL PROVISIONS and contract requirements prior to bidding and to keep complete and accurate records of all spending. The successful low bidder and any of its subcontractors shall be responsible for complying with the Supplemental Conditions / Special Provisions which are incorporated herein by reference.

Submit your Bid on the RTO Bid Form provided. Submit Bids for the RTO "Raising the Roof"- Roof Replacement Work in a **sealed envelope** including the Bid Submission Date, and all Bidder's Information clearly identified on the exterior of the envelope. Faxed or electronic transmission of Bids **will not** be accepted. Bids are required to be submitted under a condition of irrevocability for a period of six (6) months. All contracted work must be completed by November 30, 2018.

Bids, signed and under seal executed, and dated will be received at RTO's office, 385 S. Pearl Lake Causeway, Altamonte Springs Fl. 32714, before **5PM** local prevailing time, on the **31st day of October, 2017**. Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed.

Required Bid Documents:

- Copies of State and local business licenses
- Copies of Contractor's Certificates of Insurance
- RTO Bid Form Completed in its Entirety
- Suspension and Debarment Certification Completed in its Entirety

Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain mathematical errors, erasures, alterations, or irregularities of any kind may be declared unacceptable.

RTO BID FORM

To: Rebuilding Together Orlando, 385 S. Pearl Lake Causeway, Orlando FL. 32714
For: Roof Replacement Work on Qualified Single Family Residences in the City of Orlando, Florida (Specific Qualified Residences to be determined by RTO).

Date:_____
Submitted By:
Bidder's Company Name: _____

Bidder's Company Address: _____

Bidder's Phone/Email:_____

BIDDER'S OFFER: Having examined the Bid Documents provided by RTO for the above-mentioned work, we the undersigned, hereby offer to enter into a Contract with the Qualified Homeowners (as determined by RTO) to perform the Roof Replacement Work as specified for the following Unit Prices (in lawful money of the United States of America):

ROOF SYSTEMS AND ASSOCIATED WORK

Asphalt Shingle Roof System (as specified) -	$_____/Square or $_____/Square Foot
2- Ply Mod. Bit Roof System (as specified) -	$_____/Square or $_____/Square Foot
1/8" Tapered Insulation -	$_____/Square Foot
Roof Decking (5/8" CDX Plywood) -	$_____/Sheet or $_____/Square Foot
Roof Decking (1"Dimensional) -	$_____/Lineal Foot
Wood Rafter (2" Dimensional) -	$_____/Lineal Foot
Fascia (2" Dimensional) -	$_____/Lineal Foot
Fascia (1" Dimensional) -	$_____/Lineal Foot
Gutter (5") Replacement-	$_____/Lineal Foot
Downspout (3"x4") Replacement-	$_____/Lineal Foot

Continuation RTO Bid Form:

The Bidder understands and acknowledges that:

- All Unit Prices include all labor, material and all overhead required for each item as specified on part 2 of the RTO Bid Form. Measurements and quantities for roofing and associated work will be required by RTO through photographic/plan documentation submitted by the Contractor. Inadequate documentation may result in denial of Contractors request and claim for extra charges. All applicable federal, state, and local taxes are included in the Unit Prices.
- RTO reserves the right to charge the Contractor liquidated damages in the amount of $150.00 per calendar day, for each day the project has not been completed as stipulated in the signed Contract Agreement.
- This offer shall be open to acceptance and is irrevocable for six (6) months from the Bid closing date.
- If this Bid is accepted within the period stated above, we will:
  - Enter into a Contract with the Qualified Homeowner for the Work
  - Commence the Work within five (5) calendar days after issuance of the written Notice to Proceed.
  - Perform the Work in strict accordance with the requirements of all authorities having jurisdiction.

Contractor's Company Name: _____

Signature/Title of Authorized Representative: _____

Date: _____ Contractor's Florida State License No. _____

SUSPENSION AND DEBARMENT CERTIFICATION

RTO prohibits contracting with or making sub-awards to parties suspended, debarred, or whose principals or debarred by Federal or State department or agency.

By signing and submitting this certification the Contractor certifies to the best of its knowledge and belief that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State, or local department or agency;
2. Have not within a three-year period preceding this application been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property.
3. Are not presently indicted for otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in item (2) of this certification;
4. Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default;
5. That this certification, titled "Suspension and Debarment Certification" will be included without modification, in all subcontracts for the project; and
6. Shall not knowingly enter into any subcontract with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State, or local department or agency.

Do you anticipate having a Subcontractor under this proposed contract?
_____Yes_____No

The Contractor shall provide immediate written notice to the RTO Project Manager to whom this certification is submitted if any time the Contractor learns that the certification was erroneous when submitted or has become erroneous by reason of change of circumstances.

Where the Contractor is unable to certify to any of the statements in this certification, attach a written explanation.

Contractor's Company Name: _____

Signature of Authorized Representative: _____

Printed Name & Title of Authorized Representative: _____

This document must be fully executed and submitted with every request for final payment

CONTRACTOR'S FINAL PAYMENT AFFIDAVIT AND RELEASE OF LIENS

STATE OF FLORIDA, COUNTY OF ORANGE

Before me, the undersigned authority, personally appeared _____(name), who, after being first duly sworn, deposes and says of his or her personal knowledge the following:

1. He or she is the _____(title) of _____ _____(business), which does business in the State of Florida, hereinafter referred to as the "Contractor."
2. Contractor, pursuant to the Roof Replacement Work Contract ("Contract") with: _____(Name of Owner), hereinafter referred to as the "Owner," has furnished or caused to be furnished labor, materials, and services for the construction of certain improvements to real Property located at: _____ _____(Address), which is more particularly described in said Contract.
3. All work required under the contract has been fully completed in accordance with the terms thereof, and all liens under the direct contract have been paid in full. There are no unpaid claims for materials, supplies, or equipment; no unpaid claims of subcontractors; and no claims of laborers or mechanics for unpaid wages arising out of the performance of the contract.
4. In consideration of final payment in the amount of $_____, the Contractor hereby waives and releases its lien(s) and right to claim a lien for labor, services, or materials furnished to the Owner under or by virtue of the contract. However, if for any reason, the Contractor is not paid the full amount stated herein, said deduction shall not affect the validity of this release.

Signed, sealed, and delivered this _____day of _____, 2017.

By: _____(signature) _____(print name)

Sworn to and subscribed before me this _____day of _____, 2017, by _____who is personally known to me or produced as identification, and did/did not take an oath.

_____

Notary Public

My Commission Expires: _____

ROOFING WARRANTY

A. Know all men by these presents, that the Contractor is and held firmly bound unto the Owner, and that the Contractor and its executors and administrators, successors and assigns, jointly and severally, by these presents. The condition of the obligation is such that the Contractor has entered into a Contract with the Owner for the Project identified below.

B. The Contractor warrants with respect to the roofing work that for a period of five years from the issuance date of the Final Payment on the Project, the roof of the building, buildings, or covered passages included in the Scope of Work write up, shall be absolutely watertight and free from all leaks, seepage or dampness, and that the Work is otherwise free of defects, and that the Contractor shall, at no expense to the Owner, correct the Work in a manner compatible to the system and acceptable under industry standards and in accordance with the Contract Documents and local governing authorities.

C. The Principals request that the Owner gives the Contractor notice of observed defects with reasonable promptness.

D. Exclusions

1. Insufficient maintenance and normal wear and tear under normal usage, in as much as the Contractor acknowledges to the Owner that the quality of materials and workmanship required by the Contract Documents can reasonably be expected not to require maintenance, nor to suffer from normal usage, during and well beyond the warranty period.
2. Damage from digging, trenching, or excavation by the Owner that impacts the Work.
3. Defects or failures resulting from abuse by the Owner.
4. Damage caused by fire, tornado, hail, hurricane, acts of God, wars, riots, or civil commotion.

INWITNESSTHEREOF, the under signed has signed and sealed this instrument this____day of_____ 2017.

Project Address: _____
Agreement Date:_____
The Contractor: _____ Partner/Witness

_____ _____
_____ _____
(Print Name) *(Print Name)*

Title: _____

STATE OF FLORIDA COUNTY
OF ORANGE

Personally appeared before me, the undersigned authority,_____who is personally known to me or produced_____as identification, and did/did not take an oath.

_____
Notary Public
My Commission Expires:

End of Warranty

ROOFING WARRANTY ACKNOWLEDGEMENT

To: Rebuilding Together Orlando - RTO

Subject: Warranty for Roof Replacement Work

Address: _____

_____(Insert project address)

Owner: _____
(Insert name)

Pursuant to the Contract Documents and our Roofing Work Contract, dated _____(insert date), with the Owner listed above, _____(insert company name) hereby acknowledges and advises RTO that the Contractor's and Roofing Manufacturer's/ Roofing Warranties have been provided and explained to the Owner of the residence located at the above- mentioned address.

In connection with the performance of the Work under the Contract Documents, you are advised that I warrant that all materials, fixtures and equipment furnished by me and my Subcontractors were new and of good quality and of good title. Should any defects appear within FIVE (5) YEARS on any and all ROOF REPLACEMENT WORK, from the date of the issuance of final payment, caused by faulty materials, fixtures, equipment or workmanship, I shall remedy the defects, make the roof system watertight and pay for any damage to other work resulting there from.

A copy of separate Warranty(s), provided to the Owner, are attached for the Roof Replacement Work as specified to be warranted in the Contract Documents.

Contractor's Company Name: _____

Authorized Representative Name/Title: _____

Authorized Representative Signature: _____

Date: _____

Street Address: _____

City, State, Zip Code: _____

Phone Number: _____

Email Address: _____

OWNER AUTHORIZATION

(For Final Payment)

I hereby certify that the Roof Replacement Work performed under the Rebuilding Together Orlando, “Raising the Roof" Program and Contracted with the Qualified Homeowner under date

of_____, 2017 for the real property locate date: _____

_____

Orlando, Florida_____has been completed in accordance with the terms of the Contract Documents for said project.

I understand that the work performed by_____, hereinafter referred to as the “Contractor,” carries a FIVE (5) YEAR WATERTIGHT WARRANTY on the Roof Replacement Work from the date the final payment to the Contractor is issued.

I understand that in the event that any defect in workmanship or materials is detected within the warranty period, I must contact the Contractor directly at his place of business located at:

_____

The Contractor has explained the Warranty(s) to me and I have received the original Warranty(s) from the Contractor.

I assume all responsibility for, and agree to indemnify, defend and hold harmless RTO, its elected and appointed officials, officers, agents, boards and employees, from and against any and all claims, demands, suits, actions, judgments, costs and expenses (including without limitation, reasonable attorneys’ fees including all those incurred in all trial and appellate actions) in connections with, brought or obtained, or arising from or in connection with all activities undertaken or related to RTO’s Roofing Program, or my part or behalf in the performance of any covenant or agreement to be performed pursuant to the project which is the subject of this document, and from any negligent or intentional acts by me or any agent, contractor, servant, or employee of min in or about the property which is the subject of this document, and from all liability and loss on account of damages to persons or property arising out of any use, misuse, abuse, neglect, or failure to exercise due care in, or about the property which is the subject of this document, including without limitation my failure to keep the property in a safe condition.

I hereby request Rebuilding Together Orlando (RTO) to issue the final payment to the Contractor.

Signature of Property Owner / Date

(Must be signed in presence of authorized RTO personnel)

X_____ _____

Home/Property Owner Signature Date

Appendix

SECTION 07 1000

PREPARATION FOR RE-ROOFING

Part1 General

1.1 Section Includes

A. Removal of existing roofing system in preparation for a new roofing system.

1.2 Project Conditions

A. Schedule Work to coincide with commencement of installation of new roofing system.
B. Remove only existing roofing materials that can be replaced with new materials the same day.
C. Coordinate the work with other affected mechanical and electrical work associated with roof penetrations.
D. Protect building and landscaping from damage.

1.3 Material Ownership

A. Assume Ownership of demolished materials and remove from Project site and dispose of legally, unless indicated to be reused, reinstalled, or otherwise to remain Owner's property.

1.4 Quality Control

A. Work of this section must be completed by the same Installer of the new roofing system.
B. When determined present, the Installer must be legally qualified to perform the removal of asbestos containing roofing materials.
    1. Comply with governing EPA notification regulations. Comply with hauling and disposal regulations of authorities' having jurisdiction.
    2. Maintain receipt and acceptance of hazardous wastes by a licensed landfill facility.

1.5 Environmental Requirements

A. Schedule Work to coincide with commencement of installation of new roofing system.
B. Maintain continuous temporary protection prior to and during installation of new roofing system.

Part 2 Products

2.1 Materials

A. Temporary Protection: sheet polyethylene; provide weights to retain sheeting in position.

Part 3 Execution

2.2 Examination

A. Verify that existing roof surface is clear and ready for work of this section.

2.3 Preparation

A. Sweep roof surface clean of loose matter.
B. Remove loose refuse and dispose of off-site.

2.4 Material Removal

A. Remove metal counter flashings, where necessary.
B. Remove existing roofing system to wood decking.
C. Repair existing wood deck surface to provide smooth working surface for new roof system.

2.5 Temporary Protection

A. Provide temporary protective sheeting over uncovered deck surfaces.
B. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights.
C. Provide for surface drainage from sheeting to existing drainage facilities.
D. Do not permit traffic over unprotected or repaired deck surface.

END OF SECTION

SECTION 07 3000
ASPHALT SHINGLE ROOFING

Part1 General

1.1 Section Includes

A. Asphalt shingle roofing
B. Attic ventilation.
C. Underlayment.

D. Associated metal flashings and accessories.

1.2 References

A. American Society for Testing and Materials (ASTM) – ASTMD226 Asphalt Saturated Organic Felt Used in Roofing and Waterproofing.
B. ASTM D2178 Asphalt Glass Felt used in Roofing and Waterproofing
C. ASTM D3018 Class A Asphalt Shingles Surfaced with Mineral Granules
D. ASTMD4586Standard Specification for Asphalt Roof Cement, Asbestos-Free.
E. ASTMF1667 Driven Fasteners: Nails, Spikes, and Staples
F. National Roofing Contractors Association (NRCA)-MS104NRCA Steep Roofing Manual.
G. Underwriters Laboratories Inc. (UL)–Roofing Materials and Systems Directory.
H. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)– SMACNA Architectural Sheet Metal Manual.

1.3 Submittals

A. Product Data: Provide data indicating material characteristics, performance criteria, and limitations.
B. Shop Drawings: For metal flashings, indicate specially configured metal flashings.
C. Samples: Provide samples of standard colors of metal flashings, edge trim, shingles, etc., indicating color range and finish/texture/pattern for color selection.
D. Manufacturer's Instructions: Indicate installation criteria and procedures.
E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.4 Quality Assurance

A. Perform Work in accordance with the recommendations of the NRCA Steep Roofing manual.
B. Products required to comply with fire resistance criteria: UL listed and labeled.
C. Comply with all state and local building codes for roofing materials, installation, and inspections.

1.5 Environmental Requirements

A. Do not install shingles, underlayment, or protection membranes when surface temperatures are below 45 degrees F.

1.6 Delivery and Storage

A. Deliver materials in manufacturer's unopened bundles or containers with the manufacturer's brand and name clearly marked thereon.
B. Shingle bundle wrapping shall bear the label of Underwriters laboratories.
C. Store shingles in accordance with manufacturer's printed instructions. Store roll goods on end in an upright position.
D. Keep materials dry, covered completely, and protected from the weather.

Part2 Products

2.1 Shingles: Minimum 30 year warranty, Architectural shingle, Class A self-sealing; fungus resistant fiberglass strip shingle roofing over manufacturer's approved underlayment based on slope of roof.

A. ConformingtoASTMD3018 Type I Self Sealing; UL certification of ASTMD 3462, ASTM D316 / UL99760-mph Wind Resistance and UL Class A Fire Resistance; and complying with local and Florida Building Codes.
B. Shingles comprised of a glass fiber mat base with ceramically colored UV resistant mineral surface granules across entire face of shingle; algae resistant copper coated granules with a weight of 205 pounds per square.
C. Utilize shingle manufacturer's recommended eave, valley, ridge, etc., protection.

D. Acceptable shingle manufacturers include Certain-Teed, GAF, Owens Corning, or approved equal.
   1. Color to be selected by the Owner from the manufacturer's standard colors.

2.2 Attic Ventilation: Type accepted by roofing manufacturer and installed according manufacturer's recommendations, as specified, and according to federal, state, and local building codes, whichever is stricter.

A. Unless otherwise indicated provide one square foot of net free vent area per 150 square feet of attic area to be vented.
B. Provide one square foot of net free vent reaper 300 square feet of attic area to be vented when the ventilation is balanced between the lower (eave) and upper (ridge) portion of the attic such that a minimum of 40% and no more than 50% of the required net free vent area is provided in the upper portion of the attic.
C. All openings greater than 1/8 inch must be screened to prevent insect penetration and louvered to protect against the entrance of rain and snow.

2.3 Underlayment: Type accepted by roofing shingle manufacturer and installed according to local and Florida Building Code subsections 1507.3.8.1 and 1507.3.8.2. Two layers of underlayment are required when roof slope is less than 4 inches rise in 12 inches. Shingle manufacturer's recommended eave, valley, ridge, etc., protection shall be utilized.

A. Fiberglass Felt: ASTM D2178.
B. Organic Felt: ASTM D226, Type 1.
C. Modified Bitumen: ASTM D1970.

2.4 Flashing, Edge/ Rake Trim, etc.

A. Extruded aluminum complying with ASTM B221, not less than 0.078 inch (2mm) thick with two coat fluoropolymer finish or approved equal.

2.5 Fasteners

A. Roofing Nails: As approved by roofing manufacturer and compliant with local and Florida State building codes.
   1. ASTM F1667; Type 1, Style 20 galvanized steel, deformed shanks, with heads 3/8 inch to 7/16 inch diameter.
   2. Use nails 1¼ inches long for shingles and ¾ inch long for felt.

2.5 Accessories

A. Plastic Cement: ASTM D45856, Type 1.

Part 3 Execution

3.1 Examination

A. Verify existing conditions prior to beginning Work of this Section.
B. Verify that deck is of sufficient thickness to accept fasteners and meeting local and state building codes.
C. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
D. Verify roof openings are correctly framed.
E. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.2 Preparation

A. Seal roof deck joints wider than 1/16 inch with deck tape.
B. At areas where eave protection is to be adhered to substrate, fill knots holes and surface cracks with latex filler.
C. Broom clean deck surfaces before installing underlayment or eave protection.
D. Install eave edge flashings tight with fascia boards. Weather lap joints 2 inches and seal with plastic cement. Secure flange with nails spaced 6 inches on center.
E. Roof accessories, vent pipes, attic vents, and other projections through the roof must be in place and roof flashing installed or ready for installation before laying shingles.

3.3 Fabrication of Metal Work

A. Form all metal work true to shape, accurate in size, square, and free from distortion or defects.
B. Form all metal work in longest possible lengths. Prefinished extruded shapes are preferred.
C. Hem exposed edges of all metal work on underside ½ inch; miter and seam corners.
D. Fabricate vertical faces with bottom edge formed outward ¼ inch and hemmed to form drip.
E. Seal all metal joints

3.4 Installation

A. Install manufacturer's recommended eave, valley, ridge, etc., protection in accordance with manufacturer's instructions and in accordance with local and state building codes.
   1. Install eave protection membrane from eave edge to minimum 4 feet up slope beyond interior face of exterior wall.

B. Install shingle manufacturer accepted underlayment according to local and state building codes. Two layers of underlayment are required when roof slope is less than 4 inches rise in 12inches.
   1. Weather lap and seal watertight with plastic cement items projecting through or mounted on roof.

C. At eaves and rakes, install metal drip edges. Apply the metal drip edge directly over the underlayment and install according to shingle manufacturer's recommendations and local and state building codes to maintain required roofing warranties.

D. Install shingles in accordance with manufacturer's instructions and local and state building codes.
   1. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.
   2. Project first course of shingles ¾ inch beyond fascia boards.
   3. Extend shingles ½ inch beyond face of gable edge fascia boards.
   4. Complete installation to provide weathertight service.

E. Install metal flashing at the intersections of roofs, adjoining walls, or projections through the deck such as chimneys and vent stacks. Give careful attention to the installation of all flashings to provide a complete and watertight roofing system.
   1. When flashing into a masonry wall, insert flashings into reglets to form tight fit. Secure in place with lead wedges. Pack remaining spaces with lead wool. Seal flashings into reglets with sealant.
   2. Secure flashings in place using concealed fasteners.
   3. Apply plastic cement compound between metal flashings and felt flashings.
   4. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

F. Ridge: Utilize shingle manufacturer's recommended ridge cap/shingle, installed according to manufacturer's directions and complying with local and state building codes.

G. Gutters and Downspouts: Secure gutters and downspouts in place using concealed fasteners.
   1. Slope gutters ¼ inch per foot minimum.
   2. Direct downspout discharge away from building and walkways.
   3. Size gutters and downspouts to area of roof per SMACNA guidelines.

END OF SECTION

SECTION 07 5000
MODIFIED BITUMINOUS MEMBRANE ROOFING

Part1 General

1.1 Section Includes

A. Modified bituminous roofing membrane, conventional application.
B. Deck Sheathing.
C. Base Flashings.
D. Roofing Accessories.

1.2 References

A. ASTMD41 – Standard Specification for Asphalt Primer Used in Roofing, Damp- proofing, and Waterproofing.
B. ASTM D312 – Standard Specification for Asphalt Used in Roofing.
C. ASTM D6164 –Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
D. National Roofing Contractors Association (NRCA)-ML104 –NRCA Roofing and Waterproofing Manual.
E. US Environmental Protection Agency (EPA) – EPA600/R13/116 Method for the Determination of Asbestos in Bulk Building Materials.
F. Cool Roof Rating Council (CRRC):CRRC Product Rating Program

1.3 Submittals

A. Product Data: Provide manufacturer's product data for membrane and bitumen materials, base flashing materials, and surfacing.
   1. Manufacturer's Installation Instructions: Highlight any special procedures required for this project.
   2. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
   3. Manufacturer's Field Reports: Indicate procedures followed.
   4. Manufacturer's Certificate(s) indicating compliance with local, State, and Miami-Dade County requirements.
B. Shop Drawings: Provide manufacturer's drawings for standard details, indicating how they will be used for project and modifications necessary due to alternative conditions. Indicate interface with other materials.
C. Samples: Submit 2 samples (6 x 6 inches) illustrating granule surfaced sheet.
D. Installer's qualification data is to be submitted with Bids.
E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
1. Submit Contractor's Roofing Warranty, Section017810.

1.4 Quality Assurance and Control

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
B. Installer Qualifications: Company specializing in performing the Work of this Section with all applicable State of Florida licenses and insurance.
C. Product / Material Qualifications:
   1. Obtain products from single manufacturer or from sources recommended by manufacturer for use with roofing system and incorporated in manufacturer's warranty.
   2. Provide manufacturer's certification that field applied bituminous coatings and mastics, and field applied roof coatings comply with limits for Volatile Organic Compounds (VOC) per the National Volatile Organic Compound Emission Standards for Architectural coatings.

1.5 Performance Requirements

A. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
B. Roofing System Energy Performance Requirements: Provide a roofing system identical to components that have been successfully tested by a qualified independent testing and inspection agency to meet the following requirements:
   1. Energy Performance: Meet the requirements established by Energy Star and initial solar

Reflectance not less than 0.70 an emissivity not less than 0.75when tested according to CRRC-1

1.6 Pre-Installation Meeting

A. Convene one week before starting Work of this Section. Meeting will be held at the jobsite and shall be attended by the Contractor, Subcontractor (if any), designated RTO personnel, and Owner.

B. Review preparation and installation procedures and coordinating and scheduling required with related Work.

1.7 Delivery, Storage, and Protection

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Store products in weather protected environment, clear of ground and moisture.

1.8 Project Conditions

A. Coordinate the work with installation of associated flashings and counter flashings as the Work of this Section proceeds.

B. Do not apply roofing membrane during unsuitable weather.

C. Do not apply roofing membrane when ambient temperature is below 40 degrees F.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weather proofed the same day.

1.9 Warranty

A. See Section 01 7800 for additional warranty requirements.

B. Correct defective work within a five (5) year period after the issuance date of the final payment on the Project.

C. Provide twenty year manufacturer's material and labor warranty to cover failure to prevent penetration of water.

Part2 Products

2.1 Manufacturers:

A. CertainTeed –Basis of Design

B. GAF- product meeting or exceeding criteria specified and Basis of Design.

C. Siplast - product meeting or exceeding criteria specified and Basis of Design.

D. Or approved equal product meeting or exceeding criteria specified and Basis of Design.

2.2 Roofing – Conventional Application

A. Modified Bituminous Roofing: Two ply roofing membrane system - mechanically fastened base ply and self-adhered cap sheet.

2.3 Membrane, Sheet Materials, and Adhesives

A. Base Ply: Basis of Design, CertainTeed – Flintastic SA Nail base

1. SBS Modified Bitumen, meeting ASTM D4601, TypeII and CGSB 37GP-56M Type2b,ClassC, Grade 1.
2. Thickness: 60 mils per ASTMD5147
3. Tensile Strength: 65/40 lbs. /inch per ASTM D5147 @73 degrees FMD/XD.
4. Elongation: 6% /5% per ASTM D5147 @73 degrees FMD/XD.

B. Cap Sheet: Basis of Design, CertainTeed – Flintastic SA Cap Cool Star

1. SBS Modified Bitumen, meeting ASTM D6164, Grade G, Type 1, D7505 and CGSB37, GP-56m, Type1a,Class A,Grade1.
2. Thickness: 160mils.
3. Tensile Strength per ASTMD5147:
   a. At73.4+/-3.6 degrees FMD/XD:80/55lbs./inch.
4. At 0 =/- 3.6 degrees Elongation per ASTM D5147:
   a. FMD/XD: 115/90lbs./inch.

a. At 73.4 =/- 3.6 degrees FMD/XD: 60%/ 65%.

b. At 0 =/- 3.6 degrees FMD/XD: 40%/ 40%.

5. Dimensional Stability: 0.5% per ASTM D5147.
6. Low Temperature Flex: Pass @ 0 degrees F per ASTM D5147.
7. Tear Strength: 110/80 lb. sat 73.4=/-3.6 degrees F per ASTM D5147.
8. Top Surface: Highly reflective Cool Star granules (Energy Star approved).
9. Initial Solar Reflectance: CRRC-0.70 and ASTM E1980–86.
10. Aged Solar Reflectance: CRRC - 0.59 and ASTM E1980-69.
11. CRRC Thermal Emittance: 0.90.
12. Modified Bitumen Coating: Non-oxidized (flux) asphalt, blended with elastomeric styrene- butadiene-styrene (SBS) polymer.
13. Support Mat: High performance, puncture and tear resistant non-woven polyester and fiber glass scrim combination mat.

2.4 Bituminous Materials

A. Primer: ASTM D41, asphalt type, as approved by roofing manufacturer.
B. Adhesive: ASTM D4479, Type II, as approved by roofing manufacturer.

2.5 Attic Ventilation: Type accepted by roofing manufacturer and installed according manufacturer's recommendations, as specified, and according to federal, state, and local building codes, whichever is stricter; when attic space exists.

A. Unless otherwise indicated provide one square foot of net free vent area per 150 square feet of attic area to be vented.
B. Provide one square foot of net free vent area per 300 square feet of attic area to be vented when the ventilation is balanced between the lower (eave) and upper (ridge) portion of the attic such that a minimum of 40% and no more than 50% of the required net free vent area is provided in the upper portion of the attic.
C. All openings greater than 1/8 inch must be screened to prevent insect penetration and louvered to protect against the entrance of rain and snow.

2.6 Flashing, Edge / Rake Trim, etc.

A. Extruded aluminum complying with ASTM B221, not less than 0.078 inch (2mm) thick with two coat fluoropolymer finish or approved equal.

2.7 Accessories

A. Cant and Edge Strips: Asphalt impregnated wood fiberboard, compatible with roofing material; cants formed to 45 degree angle.
B. Sealants: As recommended by roofing manufacturer.
C. Fasteners: As recommended by roofing manufacturer and compliant with local and Florida building codes.

Part3 Execution

3.1 Examination

A. Verify that surfaces and site conditions are ready to receive Work.
B. Verify deck is supported and secure.
C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system. Sweep decks to broom clean condition.
D. Verify deck surfaces are dry.
E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.
F. Remove projections that might damage roofing materials.

3.2 Wood Deck Preparation

A. Verify flatness and tightness of joints of wood decking. Fill knot holes with latex filler.
B. Confirm dry deck by moisture meter with 12 percent moisture maximum.
C. Replace any damaged or missing decking. Match existing decking in material and thickness.
D. Prepare decking as required by roofing membrane manufacturer to provide specified warranty.
E. When indicated in the Scope of Work Write Up, install roof deck insulation and cover board per Section 07 2000.
F. Roof accessories, vent pipes, attic vents, and other projections through the roof must be in place and

roof flashing installed or ready for installation before laying shingles.

3.3 Membrane Application

A. Mechanically attach base ply membrane and self-adhered cap membrane in accordance with manufacturer's instructions and compliant with all local and Florida State building codes.

B. All plies of membrane roofing shall be installed smooth, free from air pockets, wrinkles, fish-mouths, or tears. Ensure full bond of membrane to substrate.

C. All membrane installation shall include lapped and sealed edges, with ends permanently waterproof.

D. At end of day's operation, install waterproof cut-off. Remove cut-off before resuming roofing operations.

E. At intersections with vertical surfaces:
   1. Extend membrane over cant strips and up a minimum of 8 inches onto vertical surfaces.
   2. Insert base flashing in to reglets secure and counter flash.

F. Around roof penetrations, mop in and seal flanges and flashings with flexible flashing.

G. Coordinate installation of roofing and historic scupper, drain locations and related flashings.

H. Roof Edges and Terminations:
   1. Where nailers occur at roof edges or penetrations to receive metal base flashing, apply a continuous strip of underlayment over the nailers before the first ply sheet is applied.
   2. After membrane is installed turn the underlayment back over the roofing, and secure in place with cold applied adhesive before installation of metal edges extending out onto the membrane are installed.
   3. Where cants occur (at vertical surfaces), cutoff roofing sheets two inches above top of cant strips, except where roof accessories have integral cants, extend membrane over cant and up vertical surface to top of curb or nailer.
   4. Where fascia-cant occurs at roof edges, extend membrane beyond outside cant face and cut off at outside after base flashing is installed.
   5. Where reglet occurs at vertical surfaces, extend plies roofing sheets up into reglet and full depth of the reglet.

I. Base Flashing:
   1. Provide built-up base flashing over cants as necessary to make Work watertight.
   2. Apply flashing on top of roofing, up face of cant and up the face of the vertical surface at least 8 inches above the roofing but not more than 14 inches above the roofing, generally full height beneath counter flashing or top of curb flashing.
      a. At fascia-cants, extend to top of cant and cut off at top of cant.
      b. At reglet, extend full depth into the reglet.
   3. Use two plies of modified bituminous sheet.
      a. Extend the first ply four inches out on the roofing, and the second ply three inches beyond the first ply. Lap ends three inches with joints broken 18 inches in each ply. Use smooth surface modified bituminous sheet for first ply.
      b. Use granular surfaced modified bitumen cap sheet for second ply.
   4. Set base flashing in a solid application of cold-applied adhesive.
      a. Set cap sheet in cold applied adhesive with laps sealed with cold applied adhesive.
      b. Except for venting roof edges, seal the top edge of the base flashing with roof cement.
   5. Except at metal fascia cants, secure top edge of base flashing with nails on a line approximately one inch below top edge, spaced not more than eight inches on center.
      a. Cover nail heads with roof cement.
      b. Cover the top of the base flashing with metal counter flashing.
      c. At the fascia cants secure the top edge of the flashing with fascia compression clamps.

3.4 Cleaning

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by bitumen or other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning advice and confirm to their documented instructions.

C. Repair or replace defaced or damaged finishes caused by Work of this Section.

3.5 Protection of Finished Work

A. Protect installed roofing and flashings from construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

Section 07 6200
Gutters and Downspouts

Part 1 General

1.1 Section Includes

A. Gutters and down spouts

B. Accessories

1.2 References

A. ASTM A653: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process.

B. ASTM A792: Standard Specification for Steel Sheet, 55 percent Aluminum Zinc Alloy Coated by the Hot Dip Process.

C. ASTM A924: Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process.

D. ASTM B370: Standard Specification for Copper Sheet and Strip for Building Construction.

1.3 Submittals

A. Product Data and sizing calculation.

1.4 Quality Assurance

A. Manufacturer Qualifications: Manufacturer shall have a minimum of five (5) years' experience in the production of sheet metal gutters and downspouts.

B. Installer Qualifications: Install shall have a minimum of five (5) years' experience installing gutters and downspouts to be installed on this Project.

1.5 Delivery, Storage, and Handling

A. Store materials on dry, level, firm, and clean surface.

Part 2 Products

2.1 Materials

A. Coil Stock: Match composition of roof flashing to prevent galvanic reaction.

1. Steel: G90 galvanized steel in accordance with ASTM A653 and A924.
2. Aluminum: Formed and coated aluminum coil stock; 3105H24.

2.2 Gutters

A. K Style Gutter Fabrication:

1. Sized for capacity of roof area, in no case smaller than existing gutters being replaced.
2. Length: Continuous.
3. Thickness: Steel 24 gauge; Aluminum 0.040inch.
4. Corners: Provide mitered corners, lapped, sealed and riveted. Corners shall extend a minimum of 12 inches from the corner in each direction. Lap joint and sealant where connecting to continuous gutter. Match material, shape and finish of gutter.

2.3 Downspouts

A. Rectangular Downspout Fabrication:

1. Sized for capacity of roof and flow from gutters, in no case smaller than existing downspouts being replaced.
2. Length: Continuous one piece to fit existing conditions.
3. Texture: Corrugated.
4. Material Thickness: Steel 24 gauge; Aluminum 0.040inch.

2.4 Accessories

A. End Caps: match Material, shape and finish of gutter.

B. Outlet Tubes: Match material and shape of downspout.

C. Gutter Guard: Provide leaf guard over open gutters.

D. Gutter Support:

1. Hidden Gutter Hanger: Manufacturer's standard hidden hanger matching gutter material.

E. Downspout Support:

1. Exposed Strap: Matching downspout material, finish, and color.
2. Miscellaneous downspout components: Provide all necessary elbows, downspout offset sections, and pop rivets as required for a complete installation. All miscellaneous components shall match downspouts.

F. Fasteners: Of sufficient length to penetrate minimum 1 inch into substrate. Material to match gutters and downspouts to prevent galvanic reaction.
G. Sealants: Tri polymer, single component sealant as recommended by manufacturer at gutter joints.
H. Splash pans: Precast concrete.

2.5 Finish

A. Exterior Coating: Silicon Modified Polyester (SMP) applied to exposed side. Color shall be white, ivory, or bronze, unless otherwise indicated.
B. Interior coating: Manufacturer's standard primer wash coat.

Part3 Execution

3.1 Preparation

A. Verify that substrates are in place and ready for installation of gutters and downspouts.

3.2 Installation

A. Install work securely in place and provide for expansion and contraction of components using lapped and sealed joints.
B. Do not install damaged components.
C. Separate dissimilar metals to prevent galvanic action through the use of bituminous coating or other permanent separation recommended by SMACNA.
D. Space expansion joints in gutters as recommended by manufacturer.
E. Rivet joints where required for strength, exposed rivet shall match gutter or downspout color.
F. Torch cutting of components is not allowed.
G. Gutters:
    1. Install gutter supports at no more than 24 inches on center.
    2. Slope gutters evenly to downspouts; proved end caps at gutter ends and seal watertight per manufacturer's instructions.
    3. Install outlet tubes at all downspout locations, seal watertight.
    4. Apply joint sealants at gutter joints in manufacturer's installation instructions.
    5. Install leaf guard system.
H. Downspouts:
    1. Install downspouts, provide elbows and off sets, and secure downspouts to wall construction using downspout supports spaced no more than 10 feet on center. Maximum distance of down spout support from top or bottom of downspout shall be 2 feet. Provide a 45 degree elbow at bottom of downspout to direct water away from wall surface or foundation.
    2. Install splash pans under downspouts.
I. Cleaning and Protection
J. Remove damaged, defective or improperly installed materials. Replace with new materials installed per requirements of this Section.
K. Clean finished surfaces according to manufacturer's written instructions; maintain clean condition.

END OF SECTION

SECTION 07 9000
JOINT SEALANTS

Part1 General

1.1 Section Includes

A. Sealants

1. Sealing of joints in exterior envelope to prevent the entry or escape of water or air.
2. Sealing joints on the interior of the building to prevent the passage of water or air from space to space or between adjacent building materials.
3. Joints of a nature similar to that of joints indicated shall be sealed with same sealer, whether or not specifically indicated or scheduled to be sealed.

B. Joint Backing

1.2 References

A. ASTM C717 – Standard Terminology of Building Seals and Sealants.
B. ASTM C834 – Standard Specification for Latex Sealants.
C. ASTM C920-Standard Specification for Elastomeric Joint Sealants.
D. ASTM C1311-Standard Specification for Solvent Release Sealants.
E. ASTM C1193 – Standard Guide for Use of Joint Sealants.
F. ASTM E84 – Surface Burning Characteristics of Building Materials.
G. Sealant, Waterproofing and Restoration Institute (SWRI) – The Professionals' Guide
H. Environmental Protection Agency (EPA) – 40 CFR 59 National Volatile Organic Compound Emission Standards for Consumer and Commercial Products.

1.3 Definitions

A. M Type Substrates: Cast-in-place concrete, concrete masonry units, clay brick, masonry mortar, natural stone.
B. G Type Substrates: Glass and transparent plastic glazing sheets.
C. A Type Substrates: Metals, porcelain, glazed tile, and smooth plastics.
D. O Type Substrates: Wood, unglazed tile, substrates not included under other categories.
E. T Type Substrates: Surfaces bearing pedestrian or vehicular traffic.
F. NT Type Substrate: Non-traffic bearing surfaces.

1.4 Submittals

A. Product Data: Provide listing of products to be used and manufacturer's data for each joint sealer, indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color availability, and installation instructions.

1.5 Delivery, Storage, and Handling

A. Deliver materials in original containers or bundles with labels showing manufacturer, product name or designation, color, shelf life, and installation instructions.

1.6 Project Site Conditions

A. Environmental Limitations: do not install sealants if any of the following conditions exist:
B. Dimensional Limitations: do not install sealers if joint dimensions are less than or greater than that recommended by sealant manufacturer.
C. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

Part2 Products

2.1 Sealants

A. High Movement Silicone Sealant: One- or two-part, ASTM C920, Grade NS, Class 25, Use NT, plus movement capability of 50 percent in extension, 50 percent in compression.
   1. Products:
      a. Dow Corning Corporation – Dow Corning 790 or 795.

B. Mildew Resistant Silicone Sealant: One-part ASTM C920, Type S, Grade NS, Class 25, Use NT, formulated with fungicide for interior use on nonporous substrates.

1. Products:
   a. Dow Corning Corporation–Dow Corning 786.

C. Butyl sealant:
   a. Products: Comply with ASTM C1311.
   b. Tremco Butyl Sealant. One-part Nonsag Urethane Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT.
2. Products:
   a. Bostic–Chem-Calk 900.
   b. Pecora Corporation–Dynatrol I-XL.
   c. Sika Corporation–Sikaflex 1a.

D. Sonneborn BASF Building Products–Sonolastic NP 1. Pedestrian Paving Joints and Interior Floor Joints:
1. One-Part Pourable Urethane Sealant for Traffic bearing use(T):
   a. Products:
      1. Bostic–Chem Calk 950.
      2. Pecora Corporation–Urexpan NR-201.
      3. Sonneborn BASF Building Products–Sonolastic SL1.
2. Multipart Pourable Urethane Sealant for Traffic bearing use(T):
   a. Products:
      1. Pecora Corporation–Urexpan NR 200.
      2. Sika Corporation–Sikaflex 2c SL
      3. Sonneborn BASF Building Products–Sonolastic SL2.
3. Nonsag Urethane Sealant for Traffic bearing use(T):
   a. Products:
      1. Pecora Corporation – Dynatred.

E. Sika Corporation–Sikaflex 1a. Latex Sealants:
1. Acrylic Latex Emulsion Sealant: One-part, nonsag, mildew resistant, paintable, complying with ASTM C834.
   a. Products:
      1. Bostik–Chem-Calk 600.
      2. Pecora Corporation–AC-20+Silicone.

2.2 Sonneborn BASF Building Products–Sonolac. Accessories

A. Primer: Nonstaining type, as recommended by joint sealant manufacturer.
B. Joint Cleaner: Noncorrosive and non-staining type, recommended by sealant manufacturer; not damaging to substrates, and compatible with joint forming materials.
C. Backer Rods: Flexible, nonabsorbent, compressible polyurethane foam, either open cell or non-gassing closed cell, unless otherwise restricted by sealant manufacturer; preformed to appropriate size and shape.
D. Bond Breaker Tape: Self-adhesive, polyethylene or other plastic tape, unless otherwise restricted by sealant manufacturer; suitable for preventing sealant adhesion.
E. Masking Tape: nonabsorbent, nonstaining.
F. Tooling Agents: Approved by sealant manufacturer; nonstaining to sealant and substrate.

2.3 Weep/Vent Products: Round plastic tubing; medium density polyethylene of thickness appropriate to joint. Sealant Colors

A. Sealant colors are to be selected from manufacturer's full range of available colors for each respective sealant and adjacent substrate to match adjacent substrates final color.

Part 3 Execution

3.1 Examination

A. Examine joints for characteristics that may affect sealant performance, including configuration and dimensions.
B. Verify that joint backing and release tapes are compatible with sealant and substrate.
C. Coordinate for repair and resolution of unsound substrate materials.
D. Inspect for uniform joint widths and that dimensions are with intolerance established by sealant manufacturer.

3.2 Preparation

A. Prepare joints in accordance with manufacturer's instructions and SWRI.
B. Cleaning: Just before starting sealant installation, clean joints as follows:
   1. Remove loose materials and foreign matter which might impair adhesion of sealant including, but not limited to, dust, dirt, coatings, paint, oil, and grease.
   2. Dry out damp and wet substrates thoroughly.
   3. Clean A-type and G-type substrates by chemical or other methods that will not damage the substrate.
   4. Remove loose particles by brushing and by blowing with oil-free compressed air.
   5. Use methods which will not leave residues that will impair adhesion.
   6. Concrete: Remove laitance and form-release coatings.
C. Do not cut or damage joint edges. Prime joint substrates where required by manufacturer's recommendations.
   1. Apply primer prior to installation of back-up rod or bond breaker tape.
   2. Use brush or other approved means that will reach all parts of joints. Avoid application to or spillage onto adjacent substrate surfaces.
D. Masking Tape: Use masking tape to keep primers and sealants off of adjacent surfaces which would be damaged by contract or by cleanup. Remove tape at the end of each day.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
E. Protect elements surrounding the Work of this section from damage or disfigurement.
F. Install fillers where needed to provide proper joint depth or support for sealant backers.
G. Do not begin joint sealant work until unsatisfactory conditions have been corrected.

3.3 Installation

A. Backers:
   1. Install backing material, to form joints enclosed on three sides as required for specified depth of sealant.
   2. Where deep joints occur, install filler to fill space behind the backing rod and position the rod at proper depth.
   3. Cut fillers to proper depth for installation of backing rod and sealants.
   4. Install backing rod, without puncturing the material, to a uniform depth, within plus or minus 1/9 inch of sealant depth specified.
   5. Where space for backing rod does not exist, install bond breaker tape strip at bottom (or back) of joint so sealant bonds only to two opposing surfaces.
   6. Install backers at depth required to result in shape and depth of installed sealant which allows the most joint movement without failure.
      a. Make backers continuous, without gaps, tears, or punctures.
B. Sealants:
   1. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
   2. Comply with sealant manufacturer's installation instructions and recommendations, except where more restrictive requirements are specified.
   3. Gunnable and Pourable Sealants: Comply with recommendations of ASTM C1193.
   4. Apply sealants only when ambient temperature is between 40 and 100 degrees F.
   5. Do not install sealant type listed by manufacturer as not suitable for use in locations specified.
   6. Avoid dropping or smearing sealant on adjacent surfaces.
   7. Apply sealants with nozzle size to fit joint width.

8. Shape and Depth: Use methods recommended by manufacturer; completely fill the joint; make full contact with bond surfaces; tool nonsag sealants to smooth surface eliminating air pockets.
    a. Use concave joint shape shown in Figure 8 in ASTM C1193, where not otherwise indicated.
    b. Depth of sealant at center of joint, unless otherwise required by the Contract Documents or recommended by manufacturer:
        1. For joints up to ¼ inch wide: Depth equal to width.
        2. For joints ¼ inch to ½ inch wide: Depth equal to ¼inch.
        3. For joints over ½ inch wide: Depth equals to ½ the width but not deeper than ½ inch.
    c. Contact depth: Twice the depth of sealant at center of joint, unless otherwise required.

3.4 Field Quality Control

A. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements.

B. Replace sealant which is improperly installed or damaged during construction process.

3.5 Cleaning

A. Clean adjacent soiled surfaces adjacent to joints as Work progresses and before sealants set using methods and materials approved by manufacturers of sealants and of surfaces to be cleaned.

B. Leave adjacent surfaces in a clean and unstained condition.

3.6 Protection of Finished Work

A. Protect sealants from contamination and damage until cured.

B. Remove and replace damaged sealants.

3.7 Schedule

A. General
    1. Seal joints in exterior envelope to prevent the entry or escape of water or air, prior to painting.
    2. Seal joints on the interior of the building to prevent the passage of water or air from space to space or between adjacent building materials and assemblies, prior to painting.
    3. Joints of a nature similar to that of joints indicated shall be sealed with same sealer, whether specifically indicated to be sealed or not, unless the Project does not

B. Typical Exterior Joints:
    1. Including, but not limited to, wall joints, joints around perimeter of frames, joints around pipes, ducts, conduit penetrating exterior walls, joints in wash surfaces of precast concrete, cast stone, cut stone, or concrete or brick masonry, and exterior joints for which no other sealant is indicated.
    2. Use high movement silicone sealant unless otherwise indicated.

C. Metal Flashings:
    1. Including, but not limited to, joints in flashing, edge trim, fascia, coping, where flashing is inserted into reglet in wall, top edge of surface mounted reglets, and between these items and adjacent construction.
    2. Use high movement silicone sealant.

D. Exterior door Thresholds: Set thresholds in butyl sealant.

E. Typical Interior Joints:
    1. Including, but not limited to:
        a. Between walls or partitions and adjacent casework, fixed shelving, fixed equipment, lighting fixtures, etc.
        b. Between concrete or masonry or other material and the perimeters of frames of doors, windows, access panels, etc.
        c. Between hollow metal jambs and resilient flooring.
        d. Around penetrations such as electrical boxes, plumbing, cabinets, ducts, and other openings in concrete or masonry walls or partitions. Comply with recommendations and details in USG Corporation's "Gypsum Construction Handbook".
        e. Interior joints for which no other sealant is indicated.
    2. Use acrylic emulsion latex sealant.

3. Between concrete or masonry walls or partitions and adjacent columns, pilasters, walls, partitions, floors, ceilings, or other construction use: One-part, nonage urethane sealant.

F. Joints in Interior Wet Areas:
   1. Including, but not limited to, toilet rooms, bathrooms, breakrooms, kitchens, and between walls or other surfaces and adjacent plumbing fixtures, fittings, and casework.
   2. Use mildew resistant silicone sealant.

G. Joints in Floor or Wall Tile:
   1. Including locations specified in Section 093000.
   2. Use urethane sealant, Use T for floor joints, use NT for wall joints.
   3. Backer: Backer rod.
   4. Joint shape: Flush joint configuration.
   5. Color: Match adjacent grout color, unless otherwise indicated.

H. Pedestrian Paving Joints and Interior Floor Joints:
   1. Use urethane sealant for Use T.
   2. Use bond breaker tape.
   3. Backer: Joint filler as recommended by sealant manufacturer.
   4. Joint shape: Flush joint configuration.

END OF SECTION

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