

# WATERPROOFING SPECIFICATION AND PROJECT REQUIREMENTS

## CARLYLE HOUSE BANK BUILDING

### 131 N Fairfax St. Alexandria, VA 22314

## PART 1 - GENERAL

### 1.01 SUMMARY OF WORK

- A. The **Contractor** shall provide all supervision, labor, equipment, materials and implements necessary to perform all of the work included in this specification. In general, the work will include the following items.
1. Remove all existing waterproofing related components and all associated flashings down to the substrate (concrete deck).
    - a. The brick pavers shall be salvaged for re-installation.
    - b. Concrete deck and other substrates shall be repaired on a “unit price” basis as an extra to the contract.
  2. Replace and lower all existing deck drain. For drain, provide new extension sleeve, cast iron mushroom dome and associated hardware. Fill area with gravel.
  3. Clean and prime the substrate to properly receive a new, two-ply, modified bitumen (torch-grade) waterproofing membrane as manufactured by **Siplast, Inc.**. The first ply shall be **Paradiene 20 TG** with the top ply of **Teranap TG**.
  4. Place new **ParaPro Flashing** at all base flashings and penetrations.
  5. Installed a new layer of **Paradrain** over the membrane.
  6. Place a layer of sand/cement mortar setting bed where indicated on Demo & New Construction: Floor Plan 2/A110 to provide a positive slope to the existing drains and compact in-place. Loose lay the salvaged brick to replicate the existing pattern.
    - a. The sand/cement setting bed and pavers shall be set to be flush in the finished elevation to the existing pavers.
    - c. Remaining (unused) and salvaged pavers shall be given to the Owner for future use/storage.
  7. Install concrete pavers on pedestals where indicated on Demo & New Construction: Floor Plan 2/A110
    - a. Base bid shall include an allowance for 115 concrete pavers.
    - b. The installed pavers shall be set to be flush in finished elevation to the existing pavers and salvaged pavers.
  8. Fabricate and install new stainless steel metal counterflashing and threshold flashing and/or other metal flashings or other work, as required by industry and **Manufacturer’s** standards.
  9. Perform all other work, as required by applicable industry and

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**Manufacturer's** standards, in order to provide a first-class, watertight and warranted waterproofing system.

10. Provide a Contractor's five (5) year warranty and manufacturer's twenty (20) year, "No Dollar Limit" warranty upon completion of all work.
- B. The *Supplementary General Conditions*, and the *manufacturer's (Siplast, Inc.) current recommendations* are hereby made a part of this specification as fully as if repeated herein and shall be followed except where modified by this specification.
  - C. The work to be performed under this specification shall include but is not limited to attending necessary job meetings, furnishing competent and full time supervision, providing experienced waterproofing mechanics, supplying all materials, tools, and equipment necessary to complete in an acceptable manner, as required to install the waterproofing membrane in accordance with this specification. Comply with the latest written application instructions of the Manufacturer of the primary roofing products. In addition, application practice shall comply with requirements and recommendations contained in the Fifth Edition, 2003 edition of the Roofing and Waterproofing Manual) as published by the National Roofing Contractor's Association, amended to include the acceptance of a phased roof system installation.
  - D. All materials and installations shall be in accordance with Underwriter's Laboratories, Inc. (UL) Class A, Fire Hazard Classification and Factory Mutual Engineering Corporation (FM) Class I construction requirements.
  - E. All materials containing asbestos (non to be anticipated for this work) shall be handled in strict accordance with applicable, current local, state and/or federal guidelines and regulations.

## 1.02 INTENT OF THE SPECIFICATIONS

- A. The intent of the specifications is to describe the materials and general construction required for the performance of the work. When there is a discrepancy between referenced specifications and standards, and this specification, the **Architect** shall form the decision.

## 1.03 PROTECTION

- A. The **Contractor** shall use every available precaution to provide for the safety of property **Owners**, visitors to the site, pedestrians, etc. and all connected with work under the Contract.
- B. All existing facilities, property and equipment, both above and below ground, shall be protected and maintained free of damage. Existing facilities shall remain operating during the period of construction. The Contractor will be responsible for all damages to existing resulting from their work.
- C. Barricades and fences shall be erected as required to prevent unauthorized access to construction areas.

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- D. Safety Requirements.
1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
  2. Comply with federal, state and local and **Owner** fire and safety requirements.
  3. Advise **Owners** whenever work is expected to be hazardous to **Owners**, occupants, tenants, pedestrians or employees, etc..
  4. Maintain a crewman as a floor area guard whenever structural decks are being repaired or replaced.
  5. Maintain proper fire extinguisher within easy access whenever power tools, roofing kettles, and torches are being used.
  6. **ALL SAFETY REQUIREMENTS OF THE BUILDING OWNER MUST BE FOLLOWED. NO EXCEPTIONS WILL BE PERMITTED. SAFETY ORIENTATION MEETING REQUIRED PRIOR TO PERFORMING ANY WORK.**
- E. Where work must continue over waterproofing membrane, protect surfaces.
- F. Water cut-offs shall be installed at the end of each work day and when precipitation is imminent. Water cut-offs shall be applied to all exposed edges of the system to keep water from penetrating into or under the roof system.

#### 1.04 HOUSEKEEPING

- A. Keep materials neat and orderly on a daily basis.
- B. All debris removed should be directly loaded into a mobile dumpster or truck daily. Debris may NOT be stockpiled.
- C. Maintain clean conditions while work is in progress. Cleanup shall be performed daily to meet all conditions of this project.

#### 1.05 PAYMENT SECURITY

- A. Payment & Performance Bonds: If requested and properly compensated, the **Contractor** will purchase full value Payment and Performance Bonds for benefit of **Owner** and major material suppliers. Bonding company/surety shall be rated B+ or better in current Key Rating Guide as issued by A.M. Best Co., Oldwick, NJ.

#### 1.06 WAIVER OF LIEN

- A. Partial waiver of lien form from major material suppliers shall accompany each payment request after the first payment request, to confirm and acknowledge disbursement of payments. Partial waivers of lien shall be properly completed and shall list the cumulative amount of payments received by the date of the

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waiver. This requirement shall not be waived unless agreed upon in writing by the surety and/or **Owner**.

### 1.07 TAXES

- A. **Contractor** shall pay all sales, consumer, use and other similar taxes required by law.

### 1.08 PERMITS AND FEES

- A. The **Contractor** shall apply for and secure all incidental permits, governmental fees and licenses necessary for proper execution and completion of the Work.

### 1.09 GOVERNING CODES AND REGULATIONS

- A. Work performed under this specification shall be in compliance with applicable codes, laws, regulations and ordinances of the local, municipal, state and federal departments concerned. Materials and workmanship required by such regulations shall be provided by the **Contractor** whether or not specifically noted herein or shown on the drawings.
- B. **Contractor** is required to have all licenses as required to conduct business in Virginia.

### 1.10 NOTICES

- A. The **Contractor** shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work. If **Contractor** performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without providing written notice to the building **Owner's** representative, **Contractor** shall assume full responsibility and shall bear all related costs.

### 1.11 REGULATORY REQUIREMENTS

- A. All work performed by the **Contractor**, as part of the required work, will be in full compliance with the latest publication of the following regulatory standards.
  1. IBC - The International Code Council's 2012 International Building Code.
  2. ASTM E-108, Class A fire rating.
  3. FM - Factory Mutual Engineering and Research Norwood, MA.
  4. OSHA - Occupational Safety and Health Administrations, Washington, DC.

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5. UL - Underwriters Laboratories.

## 1.12 REFERENCE STANDARDS

- A. Referenced specifications, guidelines and/or standards published by national societies, associations, and institutes shall be considered as part of this specification. In all cases, the referenced specification or standard shall be of the most recent publication date. Abbreviated identifications for the particular organizations involved are as listed below.
  1. **SMACNA** - Sheet Metal and Air Conditioning Contractors National association, "*Sheet Metal Manual*", Sixth Edition, 2003.
    - a. **NRCA** - National Roofing Contractors Association, "*The NRCA Roofing and Waterproofing Manual*", Fifth Edition, 2003.
    - b. **ASTM** - American Society for Testing and Materials.
  2. **SWRI** - Sealant, Waterproofing and Restoration Institute.
  3. **BIA** - Brick Institute of America, latest publication.
  4. **ACI** - American Concrete Institute,
  5. **ICRI** - International Concrete Repair Institute.

## 1.13 PROJECT MEETINGS

- A. Pre-Job Conference.
  1. Scheduled within 7 days prior to start of work.
  2. Mandatory attendance by a representative of **Owner, Architect, and Contractor** is required.
  3. Agenda:
    - a. Designation of responsible personnel.
    - b. Walk-over inspection.
    - c. Schedule of plan of action and daily locations of work for the week. The following weeks schedule shall be submitted on the last work day of each week.
    - d. Safety review, deliveries and staging issues.

## 1.14 QUALITY CONTROL

- A. **Owner's** representatives.
  1. **Samaha Associates, PC (SA)** will periodically monitor the work as specified. This monitoring will not relieve the **Contractor's** requirements for performance of this contract. The only deviations from the specification are those that have been approved in writing by the **Architect** and the **Owner's** Representative.
  2. **SA's** Representative must be notified by the **Contractor** in addition to the material supplier as to when work will be ready for monitoring visits.

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- B. **Contractor** shall:
1. Be experienced in all required work a minimum of five (5) years;
  2. Be acceptable by **Owner**, **Architect** and material manufacturer;
  3. Police property grounds to prevent debris build up on a daily basis;
  4. Provide emergency after hour and weekend phone numbers and names of parties to contact;
  5. Provide 48 hour notice to **Architect** for a scheduled inspection of completed construction;
  6. Schedule starting date and completion date for submittal to Building **Owner**, **Architect** (Properly documented inclement weather days will be extend completion date day for day);
  7. Have currently in effect and during the full duration of the contract, an approved local government contractor's license to perform the required work; and
  8. Provide protective covering and/or wrapping to walls, curbs, and all other exterior surfaces not receiving repairs.
- C. The **Contractor** will immediately make corrections and/or replacements of all deficient work noted by the **Architect**. Any areas found to contain voids, wrinkles, or other items that in the **Architect's** opinion may adversely affect the life expectancy or performance of the work shall be repaired or replaced by the **Contractor** at the direction of the **Architect** and at no extra cost to **Owner**.
- D. The manufacturer shall certify that all materials proposed to be used in the system are acceptable and compatible for the intended end use.
- E. The **Contractor's** on-site personnel shall check in every day with the **Owner's** on-site staff, inform them of daily progress and provide a signed, written report of progress made (if requested), on-site personnel used and deliveries received.
- F. If required, the **Contractor** shall furnish samples of the completed membrane or the entire system for analysis by the **Architect**. The **Contractor** shall take samples where and when directed by the **Architect**. The **Architect's** analysis of samples shall be the official record for the project. Additional testing (such as by the system **Manufacturer**) will not be used for determining compliance with the project specifications. The **Contractor** is responsible for repairing all sample areas in a manner required so as to maintain all warranties and guarantees.
- G. Pre-Final Monitoring Visits.
1. **Contractor** must inform the **Owner**, **Manufacturer's Representative** and **Architect** prior to removal of scaffolding, adding coverings or otherwise making any new work inaccessible. **Contractor** to schedule visits at least three (3) days in advance.
  2. Installations or details noted as deficient during monitoring visits must be repaired and corrected immediately by the **Contractor**.
  3. Once repairs have been made, **Contractor** must inform **Architect** so a follow-up visit can be scheduled.

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4. **Architect** must provide written approval of system prior to acceptance.
- H. Final Monitoring Visit.
  1. Scheduled by building **Owner/Owner's** representative, **Architect**, and material manufacturer.
  2. Mandatory attendance by the **Owner** or designated representative, **Architect** and **Contractor** is required.
  3. Minimum Agenda:
    - a. Walkover inspection.
    - b. Identification of problems which may impede issuance of warranty or final payment.

### 1.15 SUBMITTALS

- A. Prior to delivery of materials, submit a detailed list of all materials to be used along with manufacturer's certification that all materials meet or exceed specified requirements and that all materials are compatible for the intended use.
- B. Insurance Certificates.
  1. The **Contractor** and any **Subcontractors** used must provide the **Owner** with a certificate evidencing insurance coverage in the amounts stated below. Insurance required shall be issued by a company acceptable to the **Owner**. The **Owner** will receive thirty (30) days written notice from the insurer before any change, cancellation or modification of such policy shall become effective.
    - a. Workmen's Compensation Employer's Liability - Statutory/\$500,000.
    - b. Comprehensive General Liability - \$5,000,000/\$1,000,000 Bodily Injury (including blanket contractual) - \$5,000,000/\$5,000,000 Property Damage.
    - c. Automobile Liability - \$500,000/\$1,000,000 Bodily Injury - \$500,000 Property Damage.
- C. Prior to starting work, the **Contractor** shall submit the following items for approval by the **Owner** and **Architect**.
  1. Two copies of **Manufacturer's** data for all major products to be used, especially building sealant and color charts, etc. (include certification or other data substantiating compliance with the requirements).
  2. Proof of experience, listing at least five (5) previously completed projects, having similar scope and material use as required for this project. Also provide current references for work performed.
  3. Requested work and material storage areas as well as a detailed working sequence/schedule. Schedules shall be updated and reissued every thirty (30) days.
  4. Certificate of Insurance, evidencing required coverage limits for the **Contractor** and all **Subcontractors** and, if required, full performance and

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- payment bonds.
5. Draft of proposed **Contractor** and **Manufacturer's** warranties.
  6. Shop drawings for all details (as requested).
  7. Any other item requested by the **Architect** for clarification and/or documentation purposes. Note that some additional shop drawings may be required because of field conditions encountered and it is the **Contractor's** responsibility to submit these drawings for review and approval by the **Architect**.
  8. A written safety and staging plan for the work.
- D. It is the **Contractor's** responsibility to obtain approval of all other submittals prior to starting work. Unapproved materials or other items shall not be utilized.
- E. All submittals, samples and pay requests shall be sent to the **Architect**:
- Samaha Associates, PC**  
**10521 Rosehaven Street, Suite 200**  
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**Attention: Shannon Crossley**

## 1.16 START AND COMPLETION

- A. **Contractor** shall start work within 21 calendar days of his notification of contract award (unless modified in contract agreement) and shall complete work on the completion date (or within the duration) stipulated. Any request for extension of contract time considered necessary by the **Contractor** must be submitted in writing to the **Owner** with complete details of conditions necessitating extension and specific time of extension requested. Any extension must be specifically authorized by the **Owner** in writing. For each day (not previously authorized) past the stipulated completion date, a two hundred dollar (\$200.00) per day penalty shall be deducted from the contract amount.

## 1.17 PERSONNEL CONDUCT AND DRESS ATTIRE

- A. Personnel shall conduct themselves in a professional manner at all times.
- B. All crew members and **Subcontractor** crew members shall be dressed with long slacks and shirts while on the facility grounds.
- C. No harassment of any nature by an member of the **Contractor's** personnel or **Subcontractor's** personnel will be tolerated. Any party and/or parties known of such actions will be removed from the facility.
- D. Breaks, including lunch, shall be taken only in designated areas.

## 1.18 FACILITY AND GROUND CLEAN-UP

- A. Work is anticipated to be performed at night when local businesses effected in this work zone are closed. The work **MUST** be sequenced so that the pavers are

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- installed on a daily basis so commerce can be conducted without any interruption.
- B. **Contractor** shall police grounds daily in their designated set-up area. All job site areas shall be left in "BROOM-CLEAN" condition at the end of each shift and/or work day. Failure to comply with this clean-up will result in appointed personnel performing said clean-up work and billing **Contractor** at one hundred dollars (\$100.00) per hour for necessary time devoted to this project and shall include any "loss of business" charges due to your inability to comply with this directive.

## 1.19 GENERAL

- A. Comply with Quality Control, References, Specification, and **Manufacturer's** data. Where conflict may exist, more stringent requirements govern.
- B. Provide primary products from the specified **Manufacturers**. Provide secondary products only as recommended by **Manufacturer** of primary products for use with system specified.
- C. Familiarize every member of the application crew with all fire and safety regulations recommended by OSHA, NRCA and other industry or local governmental groups.

## 1.20 MATERIAL DELIVERY, STORAGE AND HANDLING

- A. Delivery of Materials.
1. Materials/products will not be allowed to remain on-site during nonworking hours without expressed approval from the **Owner**.
  2. If allowed, deliver materials to job-site in new, dry, unopened and well marked containers showing product and **Manufacturer's** name.
  3. Deliver materials in sufficient quantity to allow continuity of work.
  4. No material shall be shipped to building **Owner's** loading areas. Any material shipped to the **Owner** will be refused. All freight cost occurred will be **Contractor** responsibility.
  5. Coordinate delivery to avoid **Owner** involvement.
  6. **Contractor** shall schedule unloading shipments with their personnel and equipment in the designated area apposed by building **Owner**.
- B. Storage of Materials.
1. Materials/products will not be allowed to remain on-site during nonworking hours without expressed approval from the **Owner**.
  2. If allowed, store materials in dry area protected from water or extreme humidity.
  3. **Remove plastic packing shrouds. Cover all stored materials with tarpaulin, top to bottom.** Secure tarpaulin with appropriate straps, weights, etc. for high wind conditions.
  4. Material shall be stored on the roof sections only. Material and equipment storage on the ground is strictly prohibited.

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- C. Material Handling.
  1. Material handling equipment shall be selected and operated so as not to damage existing construction. Do not operate or situate material handling equipment in locations that will hinder smooth flow of vehicular or pedestrian.
  2. The **Contractor** will be responsible to replace, at no cost to the **Owner**, any existing insulation to be reused if damaged due to neglect, abuse, or other means within the control of the **Contractor**.
- D. Environmental Requirements.
  1. Do not work in rain, snow or in presence of water or when the air temperature is below 40 degrees Fahrenheit or as required by the respective **Manufacturers**, without prior authorization.
- E. Any damaged or wet materials and any materials that are improperly delivered, stored or handled will be identified and immediately removed from the site.

### 1.21 PROJECT CLOSE-OUT AND WARRANTY

- A. Prior to final payment, the **Contractor** shall submit the following items which shall be in a written form acceptable to the **Owner**:
  1. Applicable release of liens (covering the **Owner** and the **Architect**);
  2. The **Contractor's** five (5) year (minimum) materials and workmanship guarantee (to encompass all work performed, including metal work); and
  3. The **Manufacturer's** standard twenty (20) year (minimum), unlimited dollar amount (no dollar limit) , materials and workmanship system guarantee.

### 1.22 CONTRACTOR INSPECTIONS

- A. Verify installation conditions are satisfactory to receive work.
- B. Do not install new work until all unsatisfactory conditions are corrected.  
**Beginning work constitutes acceptance of conditions.**
- C. Verify that work of other trades has been approved by **Owner** and **Architect**.
- D. Check projections for inadequate anchorage, foreign material, moisture, or unevenness that would prevent quality and execution of new system.
- E. Start of work by the **Contractor** shall imply approval of surfaces and site conditions, and no claim in this respect will be considered valid in case of failure of the components within the guarantee period.
- F. The **Contractor** shall notify building **Owner** and **Architect** in writing of any defects in the substrate, and work shall not proceed until corrections of defects have been approved.

### 1.23 CHANGES IN THE WORK

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- A. The **Architect** will have the authority to authorize minor changes in the work not involving alterations to the contract price or time that are not inconsistent with the overall intent of the specification.
- B. The **Owner** may make changes to the work within the general scope of the specifications consisting of alterations, additions, deletions or other revisions with the contract time and amount being adjusted correspondingly. These changes will be authorized by a written change order signed by the **Owner, Contractor** and **Architect**.
- C. The final contract price will be adjusted at the completion of the work to give the **Owner** credit for any unused quantities of unit priced items. Any additional quantities required will be added to the Contract at the agreed unit prices.

#### 1.24 SCHEDULE

- A. Installation of work should be scheduled with the **Owner** and tenants to minimize potential for damage and interruption of services.
- B. **Contractor** shall provide a written schedule outlining the proposed work sequence. Schedule shall be revised on a weekly basis to reflect any changes.

#### 1.25 SINGLE SOURCE RESPONSIBILITY

- A. The associated work shall be contracted to a single firm, called the **Contractor** hereafter, specializing in the type of work required, so that there will be undivided responsibility for the performance of the work.

#### 1.26 QUALITY ASSURANCE

- A. The associated work shall be contracted to a single firm, called the **Contractor** hereafter, specializing in the type of work required, so that there will be undivided responsibility for the performance of the work.
- B. **Contractor** shall have a minimum of five (5) years experience in successfully installing the same or similar roofing materials and be certified in writing by the roofing materials **Manufacturer** to install the primary waterproofing products.
- C. Primary waterproofing materials **Manufacturer** shall provide trained company personnel to attend necessary job meetings, perform periodic inspections as necessary, and conduct a final inspection upon successful completion of the project.

#### 1.27 JOB CONDITIONS

- A. Proceed with work only after all submittals are approved and pre-work conference is completed.
- B. The **Contractor** must examine all phases of work to be performed and notify the

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- Owner**, in writing, of any unsatisfactory conditions. The work may not proceed until conditions are satisfactory to all parties. The beginning of work will be considered the **Contractor's** acceptance of all conditions.
- C. The work may proceed only when weather conditions are in compliance with the recommended limitations, and when conditions will permit the work to proceed in accordance with the project specifications and the **Manufacturer's** recommendations.
  - D. Only as much of the new waterproofing assembly as can be made watertight each day, including all flashing and metal work, shall be removed and/or installed.
  - E. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.
  - F. All surfaces to receive new waterproofing membrane or flashings shall be thoroughly dry. Should surface moisture occur, the **Contractor** shall provide the necessary equipment to dry the surface prior to application.
  - G. All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude leakage or damage.
  - H. Temporary seals shall be installed at the end of each day's work or when inclement weather is threatening, and shall be removed before proceeding with the next day's work. The seals shall be compatible with all materials and shall not emit dangerous or incompatible fumes.
  - I. Arrange work sequence to avoid use of the newly constructed waterproofing for storage, walking surface, and equipment movement. Where such access is absolutely required, the **Contractor** shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Protection shall be provided for all new and existing waterproofing areas which receive traffic during construction.
  - J. Prior to and during application, all dirt, debris and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air or similar methods.
  - K. The **Contractor** shall follow all safety regulations as recommended or required by OSHA.
  - L. The **Contractor** shall ensure during application and storage that overloading of deck and structure does not occur.
  - M. Liquid materials, such as solvents and adhesives, shall be stored and used away from open flames, sparks and excessive heat.
  - N. Contaminants, such as grease, fats, oils, and solvents, shall not be allowed to come into contact with the waterproofing assembly.
  - O. The **Contractor** shall verify that all drain lines are unblocked before starting work. Report any such blockages to the **Owner**.
  - P. If any unusual or concealed condition is discovered, stop work and notify the **Owner** immediately both verbally and in writing.
  - Q. Site clean-up, including both interior and exterior building areas which have been

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- affected by construction, shall be completed to the **Owner's** satisfaction.
- R. Do not apply any materials to a damp or frozen surface.
  - S. Installation may be continued in cold, dry weather providing that all provisions of this specification can be complied with; however, work shall not be continued when the air temperature (including wind chill factor) is 32° Fahrenheit or less.
  - T. Grind down abandoned penetrations flush with the deck surface. Properly repair any deteriorated decking or voids in the decking. Install an additional layer of the waterproofing membrane, extending a minimum of four (4) inches beyond the studs or any deck repairs.
  - U. The Contractor shall erect and maintain barricades around the work areas to protect work and enforce proper safety conditions. Barricades may include temporary platforms through the work zones to maintain egress to the various doorways (for tenants and retail spaces).

### 1.28 SAFETY PRECAUTIONS

- A. All project site and OSHA safety rules shall be adhered to in the execution of this work. Adequate protection shall be provided, to prevent burns and skin irritation, in accordance with materials safety data.
- B. Familiarize every member of the application crew with all fire and safety regulations recommended by OSHA, NRCA and other industry or local governmental groups.
- C. The **Contractor** shall designate one person on each crew to perform a daily fire watch. Upon completion of each days work, the designated crew member shall watch for fires or smoldering materials on all areas of roof construction. Continue the fire watch in accordance with industry standard practices and the policies of the facility (½ hour minimum).

### 1.29 PROTECTION AGAINST SOILAGE

- A. Surface of walls, walks, pavements, adjacent property, etc. shall be protected as necessary to prevent soiling or other damage resulting from the application of transporting of materials. If surfaces are stained or damaged in any way, they shall be restored by this **Contractor**, at no cost to building **Owner**, in a manner acceptable to building **Owner**.

### 1.30 WORK SEQUENCE

- A. Once work is started, all work shall continue without undue delay until that section is completed, before starting another.
- B. Due to limited staging areas and phased application of work, it is the **Contractor's** responsibility to determine acceptable safety limits for this work in excess of the allowable loading stated.

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- C. The **Contractor** shall complete each day's work area to include membrane, protection board, setting bed and pavers.

### 1.31 WORK HOURS

- A. Contractor shall be required to perform work during normal work hours. Depending on the specific location, the window of daily operation shall be defined as the period from 7:00 a.m. to 6:00 p.m., Monday through Friday. The **Contractor** is not required to work beyond an eight (8) hour day, or a 40 hour work week, without prior approval from the **Owner**, should additional compensation be sought.
- B. Should the **Contractor** desire the opportunity to work on a weekend, off-hours or a Holiday, prior approval shall be obtained from the **Owner** and in compliance with local noise ordinances and effected local commerce hours of operation. The **Contractor** is required to work a 40 hour week at this project unless adverse weather conditions or other acceptable reasons defined in the contract agreement occur.
- C. All work requiring interior access, such as drain work, shall be performed during normal work hours and coordinated with on-site security.

### 1.32 DISPOSAL OF WASTE/DEBRIS/UNUSED MATERIALS

- A. Any regulated wastes generated on site (e.g. hazardous, residual or special waste, including regulated wastewaters), must be disposed of by **Contractor** in strict accordance with federal, state, and local standards. Please provide contracts or prior history of contractors used for waste disposal. If cleaning processes generate regulated wastes, provide a list of the waste streams and proposed disposal mechanism. No wastes may be disposed of down the drain.

### 1.33 INDEMNIFICATION

- A. To the extent permitted by law, the **Contractor** agrees to indemnify, hold harmless and defend the **Owner**, including his employees, agents and **Architects** against any and all claims, loss, damage, cost and expense arising from injury to or death of any persons or damage to, or destruction of tangible property including, without limitation, property and employees of the **Owner**, or his agents, **Architects**, etc., injured as a result of the **Contractor's** or any **Subcontractor's** negligence, occurring wholly or in part as the result of work done or omitted to be done by, or contracted to be done but not done by, the **Contractor** or any **Subcontractors** or the employees or agents or invitees of either, or arising from injury to, or death of, employees or agents or invitees of the **Contractor** or his **Subcontractors**. The **Contractor's** required liability insurance shall be specifically endorsed to include coverage of this indemnity

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provision.

## **PART 2 - PRODUCTS**

### **2.01 ACCEPTABLE MANUFACTURERS**

- A. Products manufactured by **Siplast, Inc.**, of Irving, Texas and other compatible products used in the system and approved by **Siplast, Inc.**

### **2.02 WATERPROOFING SHEET MATERIALS**

- A. Modified Bitumen Base Ply Membrane: One ply of **Paradiene 20 TG** (torchablegrade) as manufactured by **Siplast, Inc.**
- B. Modified Bitumen Top Ply Membrane: One ply of **Teranap FILM TG** (torchable-grade) as manufactured by **Siplast, Inc.**. Size as chosen by **the Contractor**.
- C. Wall and Penetration Flashing: **Parapro 123 Flashing** as manufactured by **Siplast, Inc.**
- D. Drainage Layer: **Paradrain Drainage Mat Extensive**, nominal 7/16 inch thick, as manufactured by **Siplast, Inc.**

### **2.03 BITUMINOUS MATERIALS**

- A. Asphalt Primer: **Siplast PA-1125** primer as manufactured by **Siplast, Inc.**, to comply with the requirements of ASTM D-41-85.
- B. Plastic Cement: **Siplast PA-1021** plastic cement as manufactured by **Siplast, Inc.**, to comply with the requirements of ASTM D-4586, Type II (asbestos free).

### **2.04 PAVERS AND CEMENTITIOUS PRODUCTS**

- A. Pavers: Existing pavers to be salvaged, restored and reused following selective replacement.
- B. Precast Pavers: New 8500 psi, pressed precast concrete paver with architectural grade finish. Hanover Prest Paver standard colors with Tudor finish or equal. Color to be determined by **Architect**.
- C. Pedestals: New Hanover Prest Pavers to be set on High-Tab Pedestals or equal.
- D. Edging: Hanover Edge 100 Edge Restraint
- E. Sand/Cement Setting Bed: Cementitious sand setting bed (one part portland cement to three parts sand) as required by the paver manufacturer.
  - 1. ASTM C270 Type M mortar.
  - 2. Clean, uniform construction sand.

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## 2.07 SHEET METAL

- A. Mill Finish Stainless Steel: **Microflex** as manufactured by Washington Steel Products Company of Washington, Pennsylvania, conforming to Federal Specification Q-S-766C annealed or fully annealed, or ASTM A-167, Type 302/304 with Mill Rolled 2D finish.
  - 1. 26 gauge for all new wall counterflashing and under door threshold flashing pans.
- B. Solder: Federal Specification Q-S-571 or ASTM B-32. Use 50/50 for all applicable work unless otherwise required and use soldering flux, conforming to Federal Specification O-F-506 best suited for specific metal.
- C. Repair Metal: For repairing existing metal work, use metal that completely matches the existing in regards to size, type, thickness (gauge), color, finish, etc..

## 2.08 WATERPROOFING AND RELATED ACCESSORY ITEMS

- A. Sealants for any Required Work: Chemically and physically compatible for intended use; capable of withstanding movement of up to 50 percent of joint or crack width; satisfactorily applied throughout a temperature range of 40 to 80 degrees F; Shore “A” hardness of maximum 50; non-staining; of a color acceptable to the **Owner**. Prior to starting work, submit **Manufacturer’s** information and color charts for all needed sealants.
  - 1. Use a multi-part polyurethane such as **Sonolastic NP-2** by **Sonneborn Building Products** for sealing the following items.
    - a. Top edges of counterflashings mounted on wall surfaces.
    - b. Around the top edges of clamped metal hoods.
    - c. All laps in metal flashing.
    - d. All paver to wall joints.

**Glazing & Weatherproofing Sealant** by **Dow Corning**.
  - 2. Joint Backer Rod: Closed cell, non-gassing, pre-molded foam. Material must be 50% compressible, such as **Sonofoam** by **Sonneborn Building Products**.
  - 3. Bond Breaker Tape: Adhesive backed polyethylene.
  - 4. Primer: As required by the manufacturer.
  - 5. Cleaning Products: Xylene or toluene for removing old sealants from surfaces.
- B. Miscellaneous Fasteners: Provide appropriate fasteners to meet specific project needs for such items as masonry, wood and concrete anchors for metal work flashings, etc.. **Manufacturer’s** information must be submitted for approval prior to installation.
- C. Drains: **WADE 3000** with **perforated extension** sleeve and decorative **cast-iron** grate. Match diameter of existing pipe outlet for drains to be

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replaced. Replacement drain size to match existing to be removed, verify in field.

1. Include underside deck clamps, sump pans and other items/hardware needed to install drains in accordance with applicable industry recommended practices.
  2. Stub leader pipe to drain shall be constructed of cast iron a minimum of twelve inches in length. Joint shall be formed using the lead and oakum method.
  3. Stub leader to drain line shall use a "no-hub" connection if connecting dissimilar materials and utilize a "Fernco" coupling with stainless steel band clamps.
  4. Edging: Hanover Edge 100 Edge Restraint
  5. Gravel fill around drain: Pea gravel 3/8-3/4 diameter gradation.
- D. Membrane Caulking: **Siplast PS-304 Elastomeric Sealant** as manufactured by Siplast, Inc. of Irving, Texas.

## PART 3 - EXECUTION

### 3.01 DEMOLITION AND PREPARATION

- A. Prior to starting demolition work, all existing drains shall be lowered to deck level. All drains shall be removed and new drains installed, as required in this document. The **Contractor** is responsible for maintaining the watertight integrity of the assembly.
- B. Properly remove all existing waterproofing materials, base flashings, etc. and remove from the site. Only that portion that can be completely replaced in kind (full and complete system profile) the same day shall be removed.
  1. The existing roof system generally employs a liquid membrane and/or peel and stick membrane fully adhered directly to the concrete deck surface.
  2. All deck preparation shall be in full compliance with Siplast's requirements. This will require guidance from Siplast's technical department.
  3. Should the finished paver system be delayed, provide proper safety protection to maintain pedestrian flow in the area, in accordance with Virginia guidelines. This includes the placement of temporary platforms.
- C. Examine all surfaces to be covered. Verify surface is smooth, free of depressions, waves or projections and is properly secured. Make needed repairs or replacements to the surface to obtain a suitable substrate for the new membrane. Prior to repairing or replacing portions of the deck, provide cost estimates and get approval from the **Owner**.
- D. Install any accessories or related work which are in, contacting, or which becomes an integral part of the specified roofing or flashing system, including grout cant and tapered edge details.

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- E. Remove all abandoned penetrations, supports, equipment, etc. (to be identified by **Owner**).
- F. Grind down abandoned penetrations flush with the deck surface. Properly repair any deteriorated decking or voids in the decking and concrete curbing. Install an additional layer of the roofing membrane, extending a minimum of four (4) inches beyond any deck repairs.
- G. Use grout to form a gradual transition if any attachments to the deck are elevated about the deck surface.
- H. Dry the deck and clean it as necessary to provide a suitable substrate for the new roofing system. Verify with the manufacturer (**Siplast**) the method and degree of preparation and cleaning required.
- I. Verify openings, curbs, pipes, sleeves, ducts and vents through roof are solidly set, supported and secure to the deck. Remove and replace any items such as nailers that are not suitable. Build or modify curbs as needed for all mechanical units, power vents, chimney cluster curbs, parapet walls, etc., to maintain needed 10 inch minimum flashing height. Mechanically anchor and/or fasten all assemblies to structural deck.
- J. Report to the **Owner** any surfaces which cannot be prepared properly to receive roofing. Submit cost to modify conditions to an acceptable state with an explanation of the problem. The application of the new roof system by the **Contractor** shall constitute acceptance of substrate.

### 3.02 WATERPROOFING MEMBRANE INSTALLATION

- A. Prime the deck using one gallon of primer per 100 square feet. Hold primer back two inches from all joints or openings in deck. Allow primer to dry before membrane installation.
- B. Apply waterproofing in accordance with waterproofing system **Manufacturer's** instructions and the following requirements.
- C. An aesthetically pleasing overall appearance of the finished waterproofing application is a standard requirement for this project. Make necessary preparations, utilize recommended application techniques and exercise care in ensuring that the finished application is acceptable to the **Owner**.
- D. Cutting or alterations of bitumen, primer, and sealants will not be permitted.
- E. Apply all layers of waterproofing free of wrinkles, creases or fishmouths. Exert sufficient pressure on the roll during application to ensure prevention of air pockets. Stagger the lap seams between the base ply layer and the finish ply layer.
  1. Apply all layers of waterproofing membrane in the same direction, parallel with the long dimension of the respective parapet wall.
  2. Fully bond the first membrane ply of **Paradiene 20 TG** to the prepared substrate, utilizing minimum three (3) inch side and end laps. Stagger side laps of the finish ply a minimum twelve (12) inches from side laps in the

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- underlying base ply. Apply each sheet directly behind the torch applicator. Stagger end laps a minimum of three (3) feet.
3. Fully bond the finish ply of **Teranap FILM TG** to the base ply, utilizing minimum three (3) inch side and end laps. Apply each sheet directly behind the torch applicator. Stagger end laps of the finish ply a minimum three (3) feet. Stagger side laps of the finish ply a minimum twelve (12) inches from side laps in the underlying base ply. Stagger end laps of the finish ply a minimum three (3) feet from end laps in the underlying base ply.
  4. Mitre cut (at a 45 degree angle) the leading (outer) edge of the underlying overlap in each sheet at each end joint.
  5. Provide a uniform bleed-out from each sheet.
  6. Cut and repair any unbonded areas prior to next application phase.

### 3.03 WATERPROOFING FLASHING REQUIREMENTS

- A. Wall and parapet flashings shall be installed as described below.
  1. Remove existing pavers and setting bed to expose coating and deck beneath.
  2. All surfaces shall be primed with products required by **Siplast**.
  3. All wood, insulation or other flammable materials shall be covered with a securely attached base sheet or reinforcing ply.
  4. The **ParaPro Liquid Flashing** shall be applied in accordance with the **Manufacturer's** requirements except as modified herein.
  5. Install a layer of **Paradiene 20 TG** (reinforcing sheet) up 4-inches measured from the horizontal concrete deck surface **ON TOP OF THE BASE MEMBRANE PLY** and extend 4-inches horizontally.
  6. After properly installing the **TOP MEMBRANE LAYER OF Teranap 1M Film TG** to terminate at the base of the vertical transition, prepare the membrane surface by torching off the film and installing the **ParaPro Liquid Flashings**, with fleece reinforcement, in accordance with the **Manufacturer's** requirements. Extend **ParaPro Liquid Flashings** up the vertical face to the maximum height possible
    1. At thresholds, extend fully under metal threshold hardware.
  7. The flashing shall extend at least 4 inches (minimum) horizontally from the base of the cant onto the membrane surface.
  8. At the top of all base flashing terminations below ten (10) inches above the top of the overburden, seal the top edge with **ParaPro 123** lapping onto the horizontal plane on the top of the wall. Install the product following the manufacturers guidelines.
- B. Where metal flashings are installed in conjunction with the waterproofing system (i.e. on top of **Paradiene 20 TG** base membrane) they shall be installed in accordance with the approved project details. They shall have a minimum 4 inch

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- flange and shall be installed over the base membrane in a continuous bed of **Siplast PA-1021** plastic cement.
- C. All metal penetrations flashings shall be fabricated with rounded (cut) corners, have a minimum 4 inch flange and shall be installed over the base membrane in a continuous bed of **Siplast PA-1021** plastic cement. The flanges shall be secured to the concrete deck with at least one (1) fastener per corner.
  - D. All sheet metal (including lead) to which bituminous products of any kind are applied shall be primed with **Siplast PA-1125** primer and allowed to dry before the flashing sheet(s) are applied. All sheet metal (including lead) shall also be set in a bed of **Siplast PA-1021** roofing cement.
  - E. All pipes, conduits, structural steel supports, stacks or other projections penetrating the modified bitumen roofing system must have a flanged flashing sleeve and an umbrella type cover. The use of pitch pockets or wrapping projections with modified bitumen pieces will not be permitted unless approved by **Architect**.
  - F. The **Paradiene 20 TG** stripping ply for sheet metal (including lead) shall extend at least 4 inches out beyond the edge of the metal flashing and onto the base membrane before the top ply of membrane is installed.
  - G. Caulking shall be applied to all terminations between the finish ply and metal edges (pipe penetrations).

### 3.04 PROJECT DETAILS

- A. Acceptable references to be used for details (flashings) are listed below.
  1. **SMACNA** - Sheet Metal and Air Conditioning Contractors National association, "*Sheet Metal Manual*", Sixth Edition, 2003.
  2. **NRCA** - National Roofing Contractors Association, "*The NRCA Roofing and Waterproofing Manual*", Fifth Edition, 2016.
- B. Standard industry details (based on the above references) will be used for all work in conjunction with this specification. The intent here is to provide necessary general design criteria and to give the **Contractor** the opportunity to use his experience, skills and ingenuity to develop the most effective, watertight detail that meets applicable industry standards.
- C. Where metal is utilized, it shall conform to the requirements of the **Sheet Metal** of this specification. Unless noted otherwise, metal thickness, gauge or weight shall comply with the specific references noted.
- D. The project will likely require special details that will be required to be addressed once demolition has exposed the full condition of construction. The **Contractor** will be required to make field modifications to these details to comply with the intent of these specifications, the manufacturer's requirements and industry standard practices.
- E. Listed below are specific standard details to be used for the reroofing work. These are to serve as a general guideline for the detail (flashing) work and

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represent minimum requirements for the project.

1. *Drains* - Be sure all drains are totally free-flowing and completely operable. Also refer to “**ADDITIONAL WORK ELEMENTS**” and *New Construction Details A111*.
2. *Base Flashings for Drains* - Upon removal of existing drain and installation of the new drain, install new membrane with reinforcing strip. Install **ParaPro Liquid Flashing as required by Siplast, Inc.** Seal the bottom of the panel to paver intersection with polyurethane sealant.
3. *Counterflashing* - All metal counterflashings shall be fabricated using 26 gauge stainless steel metal.
  - a. All counterflashings shall have hemmed drip edges and cover base flashings a minimum of 4-inches.
  - b. Existing building wrap shall overlap counterflashing. Add matching material as necessary to achieve a watertight detail.
4. *Miscellaneous Penetrations* - Aggressively clean the substrate to receive the flashing.
5. *Slab Edge Termination* - At concrete slab edges and terminations, carefully prepare concrete surfaces to remove all contaminants and install **Siplast’s ParaPro 123** in accordance with the manufacturer’s requirements.

### 3.05 MEMBRANE PROTECTION SYSTEM

- A. All applications of waterproofing, detailing, shall be completed and all surfaces shall be clean, free of debris, etc.. The waterproofing assembly must be inspected and approved by the **Architect** and the **Manufacturer** prior to the application of the section.
- B. Place the specified drainage board to cover all surfaces (vertical and horizontal) directly over all areas of the newly applied membrane, extending to walls, curbs, and other related junctures (excluding thresholds and lamp post bases). Lap the sheets as required by the manufacturer.
- C. Mix and install the mortar setting bed to conform to ASTM C270, *Specification for Mortar for Unit Masonry*. Mix shall consist of 1 part portland cement, up to 1/4 part lime and 2-1/2 to 3 parts sand. Aggregate shall comply with *ASTM C144, Specification for Aggregate for Masonry Mortar*.
- D. Establish finish grade at entrances and tie-in to existing paver height profile. Install string guide lines and install mortar setting bed to provide a slope for drainage.
- E. When sufficient curing allows, dry set pavers into place using the same pattern as existing.

### 3.06 ADDITIONAL WORK ELEMENTS

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- A. *New Drain Installation* - For existing drain locations, follow the work outline below.
1. Prior to starting any work, the **Contractor** shall identify a detailed procedure of the proposed drain connection method. Only a lead and oakum type joint installation will be allowed for drain to cast iron stub leader connections.
  2. The **Contractor** shall comply with the recommended practices of the Cast Iron Soil Pipe Institute and provide expansion fittings for cast iron drain work as required.
  3. Only licensed plumbers shall be used for this work.
  4. All work must fully comply with applicable building code requirements. Submit names and qualification of proposed **Plumbing Subcontractor(s)** for approval prior to starting any work.
  5. Create a sump area around each drain (so drains will be lower than the level of new membrane). Carefully chip the existing concrete so that drain bowl will set slightly below existing deck level. Fill any voids created with concrete patch material.
  6. Try to perform all work at the deck level. Where interior work (access) is required, get **Owner's** approval.
  7. Be careful to maintain the assembly in a watertight condition and keep all drains plugged until drain line installation is completed.
  8. Plug and water test each drain upon completion of the work to verify the watertightness between the drain bowl and drain line connection.
  9. Install the required clamping ring, stainless steel extension sleeve and cast iron square grates in accordance with the manufacturer's literature.
- B. *Door Threshold* - Remove the existing threshold and install a new 26 gauge stainless steel flashing skirt with a slaters edge on the concealed side in accordance with the manufacturer's requirements. Set new flashing in a full bed of sealant (not cement) and re-secure.

### 3.07 SEALANT WORK

- A. LIMIT OF WORK
1. Sealant work shall include paver terminations to penetrations, paver to threshold joints, panel to panel joints and panels to window/door joints.
  3. Work shall include all joints one the entire first floor location so that the overall finished sealant joint work will be consistent and aesthetically pleasing (no mis-matched tool joints, color variation, etc.).
- B. INSPECTION
1. Examine surfaces scheduled to receive work for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into acceptable condition through preparatory work.

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2. Do not proceed with surface preparation or installation until conditions are suitable. Report any conditions that may potentially affect proper application.
- C. PREPARATION
1. Remove or protect hardware, plates, trim for mechanical work, lighting fixtures and similar items placed prior to work on wall surfaces. Following completion of work, replace and reconnect.
  2. Clean all surfaces as required to remove dust and dirt. Wash or clean as necessary to properly prepare surfaces to receive sealant in accordance with manufacturer's standards.
  3. Remove all old sealants by scraping, grinding and/or cleaning with Xylene or Toluene.
  4. Remove all old gasket materials that protrude onto the glass surface by cutting with a knife, flush with the metal framing surface.
- D. PROTECTION
1. Protect the work of all other trades against damage or injury by use of suitable covering during the progress of the work.
  2. Protect all other finishes from damage or soilage during work.
  3. Repair damage to other surfaces caused by work of this section.
  4. Remove empty containers from the work site.
- E. SEALANT WORK
1. Clean all glass and metal sections that will come in contact with the new sealant glazing.
  2. All existing sealant joints shall be removed and cleaned from surfaces.
  3. Only sealant joints that can be replaced with new sealant shall be removed each day. No open joints shall remain incomplete at the end of each work day.
  4. Sealant shall be placed in joint and tooled to assure full contact with joint edges. The center of the sealant joint shall be one-half the width of the joint in depth.
  5. After completion of sealant work all surfaces shall be cleaned.
- F. DETAILS
1. Acceptable references to be used are listed below.
    - a. Sealant and Waterproofing Institute.
    - b. Sealant manufacturers technical requirements.
  2. Standard industry details (based on the above references) will be used. The intent here is to provide necessary general design criteria and to give the **Contractor** the opportunity to use his experience, skills and ingenuity to develop the most effective, watertight detail that meets applicable industry standards.
  3. Manufacturers details and all details attached as part of this specification shall be used.
- G. FIELD ADHESION TESTING

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1. **Contractor** will be required to perform field adhesion testing where and as directed by the **Owner's Architect**. Testing will be conducted after sealant has fully cured (approximately 14 to 21 days) and in the presence of the **Architect**.
  2. A "hand-pull" test procedure, as recommended by the Sealant, Waterproofing and Restoration Institute (SWRI) will be used. The procedure is as follows:
    - a. Make a knife cut horizontally from one side of the joint to the other.
    - b. Make two (2) vertical cuts approximately two (2) inches long at the sides of the joint, meeting the horizontal cut at the top of the two (2) inch cuts.
    - c. Grasp the two (2) inch piece of sealant firmly between the fingers and pull down at a 90 degree angle or more, and try to pull the uncut sealant out of the joint.
    - d. Sealant should tear cohesively (in itself) before releasing adhesively from the substrate.
    - e. Any test found to fail the Field Adhesion Test shall result in multiple tests within that general location.
    - f. All failed test locations shall result in the replacement of the entire joint or area where the test has indicated improper adhesion.
- H. **COMPLETION AND CLEAN-UP**
1. All building exterior surfaces shall be cleaned before removing equipment from the building.
  2. Prior to demobilization from the site, the work and grounds surrounding the work shall be jointly reviewed by the **Owner, Architect** and **Contractor**. All non-compliance items found shall be itemized in a punch-list. These items must be corrected by the **Contractor** before demobilization to the satisfaction of the **Owner** and **Architect**.

### 3.08 CLEAN-UP

- A. Bear costs of repairs and restoration of building elements, components, features or work of others damaged by materials and/or operations.
- B. At completion, before **Owner's** acceptance, remove all debris and excess materials from the site.

### END OF SECTION

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