LOIS E. BORCHARDT ELEMENTARY SCHOOL ROOF RESTORATION

RFP

Lodi Unified School District · 209-331-7181
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Request for price to repair & install a restoration coating system over the existing roofing system at Lois E. Borchardt Elementary School 375 Culbertson Dr. Lodi, CA 95242

SCOPE

OPEN TO B & C39 CONTRACTORS
-RESTORE APPROX. 31,000 SQ FEET OF ROOFING

--Flat Roof areas
Prepare for restoraBon the exisBng built-up roofing & R-30 insulaBon / taper crickets.
Remove any un-used vents or items idenBfied by District, fill decking with like kind materials.
Supply and Install torch membrane repairs to all blisters and repairs to all flat roof areas.
Supply & Install an acrylic primer and coaBng restoraBon system per manufacturers details.
Supply & Install a Pyramic Plus Lo acrylic base coaBng and top coaBng system over the exisBng roofing surface.
Supply and Install Dura Block pipe supports at all pipe/conduit locaBons.
Prepare and repaint the gas lines safety yellow.
Prepare and paint all drain baskets safety yellow.
Supply & Install Tuff Coat Architectural Wall CoaBng at all verBcal concrete walls on the interior parapet surfaces.
Seal all coping joints with urethane sealant.
Prepare and paint any galvanized pipe that is rusted as needed. Repaint with similar exterior paint.
Provide a 3-year workmanship installaBon warranty
Provide a 5-year Manufacturers warranty
Pay prevailing wage
Provide Insurance and Bonds

This work will be completed before Sept 30th, 2026
Lodi Unified School District will be providing an Inspector for this Project

Provide manufacturer's warranty for new material.
Contractor to provide 3-year workmanship warranty
Pay prevailing wage
Provide insurance bond

DATES FROM – 31 MAY 2026 -24 JULY 2026

SECTION 01 11 00

SUMMARY OF WORK

PART 1 — GENERAL

1.1 WORK REQUIRED BY CONTRACT DOCUMENTS

A. Drawings and general provisions of the Contract, including the Condi8ons of the Contract and Division 01 Specifica8on Sec8ons apply to this Sec8on.

B. The work of this project consists of, but is not limited to the Scope of Work listed below. This scope is for informa8on purposes only. It is the responsibility of the contractor to perform all work as shown, specified and required based upon the contract documents (drawings, specifica8ons, addenda, etc.)

1.2 SUMMARY

A. Sec8on includes a complete pressure washing and prepara8on of the exis8ng roofing systems for a maintenance coa8ng system to be installed.

B. Related Work Specified Elsewhere:

1. Sec8on 06 - Rough Carpentry
2. Sec8on 07: Roof Restora8on Acrylic Coa8ng
3. Sec8on 07: Sheet Metal Flashing and Trim
4. Sec8on 09: Elastomeric Acrylic Wall Coa8ng

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Iden8fica8on: Lois Borchardt Elementary School Roof Restora8on Project

B. Project Loca8on: Lois Borchardt Elementary School 375 Culbertson Dr. Lodi, CA 95242

C. Owner: Lodi Unified School District 880 N. Guild Ave Lodi, CA 95240

D. General scope of work but not limited to;

1. Base Bid -
2. Includes a complete pressure washing of all roof areas including low slope roofing, and all ver8cal walls and flashings. Remove and dispose of all debris.
3. Includes repair of all blisters in the exis8ng roof membrane. Cut the exis8ng blister and heat with a roofing torch to allow the blister to lay flat. Install Garla Prime VOC and allow to dry. Install one layer of Stressply IV Plus Mineral in a torch applica8on over the repair area extending past the cut a minimum of 6”.
4. Three course all base flashing laps with one layer of Flashing Bond mas8c, one layer of 6” Garmesh, one layer of Flashing Bond mas8c, and embed roofing granules into the fresh mas8c, allow to cure prior to applica8on of the base coat / top coat.

5. Repair all loose membrane, buckles, blisters, etc. at edge flashing, base flashing, and through field along with all details as needed for a complete prepared roof surface.

6. Inspect all roof drains for loose bolts, 8ghten as needed, replace as needed. Ensure all drains baskets are in place.

7. Install Tuff Stuff sealant applied at all roof pipe penetra8ons and all coping joints.

8. Install Garla-Block Primer at a rate of 1/2 gallon per 100 square feet to all newly applied roofing materials (mas8c & new Stressply membrane).

9. Install Pyramic acrylic coa8ng in two coats at 1.5 gal per sq per coat for a total of 3 gallons per square. Back roll both the base coat and top coat for complete adhesion, coverage, and mil thickness. Top coat is to be applied in a cross hatch paiern. Addi8onal coats may be required for proper coverage.

10. Install Tuff Coat Architectural Wall Coa8ng at all ver8cal concrete walls on the interior parapet surfaces.

11. Install new Dura Block Pipe Supports at all pipe/conduit loca8ons.

12. Prepare and paint the gas lines in safety yellow.

13. Prepare and paint the drain baskets in safety yellow.

14. Prepare and paint all galvanized pipe that is rusted and as needed.

15. Remove and replace one skylight with a prism style to match all exis8ng skylights.

16. Alternate #1 -

17. Includes a complete pressure washing of all roof areas, remove and dispose of all debris per manufacturers specifica8ons and installa8on guidelines for restora8on over metal roof surfaces.

18. Install Polyester sol over all expansion joints and coping caps. Seal all penetra8ons through the metal roof surface.

19. Install the Garland Liquitec Metal Roof Restora8on System per manufacturers specifica8ons and installa8on guidelines.

1.4 WORK COMPLETED BY THE DISTRICT

A. No work will be completed by the district.

1.5 TYPE OF CONTRACT

A. Work will be completed under a single prime contract.

1.6 USE OF PREMISES

A. General: Contractor will have limited use of premises for construc8on opera8ons.

B. Use of site: Limit use of premises to work areas required. Do not disturb por8ons of the project site beyond areas in which the work is indicated.

C. The building interior is off limits to the contractor. All access shall be from the exterior.

D. The point of exterior access must be approved by the owner.

E. Entrances: Keep all entrances serving the building clear and available to the owner, owner's employees, and emergency vehicles.

F. Use of exis8ng building: Maintain exis8ng building in a weather 8ght condi8on throughout the construc8on period. Repair damage caused by construc8on opera8ons. Protect building and occupants during construc8on.

G. Vehicle Parking: Contractor parking is available on site and will need to be approved by the owner.

H. Assume full responsibility for protec8on and safekeeping of materials stored on premises. Coordinate the loca8on of materials and equipment to be stored on premises. Provide barricades, barriers, and enclosures as required to ensure safety.

1.7 OWNERS OCCUPANCY REQUIREMENTS

A. The owner will occupy the building during the en8re construc8on phase. Cooperate with the owner during construc8on opera8ons to minimize owner conflicts and facilitate owner usage. Perform the work as to not interfere with owners opera8ons.

B. A minimum of 72 hours no8ce is needed for all ac8vi8es that will affect the owners opera8ons.

1.8 WORK RESTRICTIONS

A. On site work hours: Work shall generally be performed from the hours of 7:00 am – 5:00 pm Monday through Friday except as otherwise indicated or approved by the owner.

1. Weekend hours, early morning hours, u8lity shut down, and noisy ac8vity requires owner's authoriza8on a minimum of 72 hours in advance.

1.9 UNIT PRICES

A. The following unit prices will be used to add or deduct from the total contract amount.

a. Unit-1 Replacement of dryrot wood roof decking, add a line items per square foot cost to proposal form.

b. Unit-2 Replacement of dryrot wood fascia board, add a line item per square foot cost to proposal form.

1.10 SCHEDULE OF ALTERNATES

A. Alternate 1 - All portable classrooms as shown on the aiached site map.

1.11 PROJECT CONDITIONS

A. Proceed with roofing work only when exis8ng and forecasted weather condi8ons will permit a unit of work to be installed in accordance with manufacturer's recommenda8ons and warranty requirements.

B. Do not apply roofing insula8on or membrane to damp deck surface.

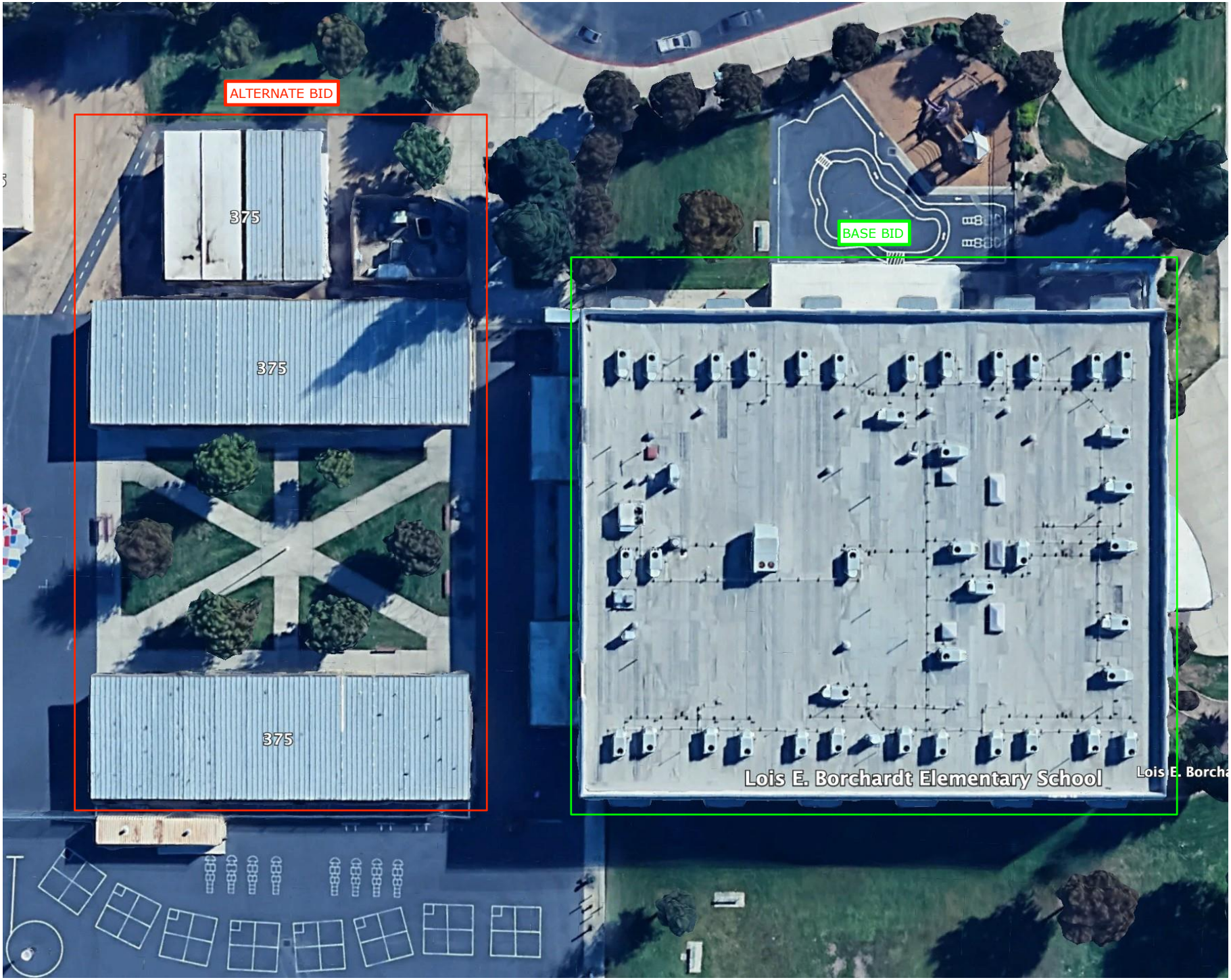
C. Do not expose materials subject to water or solar damage in quan88es greater than can be weatherproofed during same day.

1.12 SEQUENCING AND SCHEDULING

A. Sequence installa8on of roofing with related units of work specified in other sec8ons to ensure that roof assemblies, including roof accessories, flashing, trim and joint sealers, are protected against damage from effects of weather, corrosion and adjacent construc8on ac8vity.

B. Complete all roofing field assembly work each day. Phased construc8on will not be accepted.

END OF SECTION 01 11 00 – SUMMARY OF WORK


ALTERNATE BID
375
375
375
BASE BID
Lois E. Borchardt Elementary School

SECTION 07 56 40
FLUID APPLIED ROOFING RESTORATION

1. GENERAL

1.1. SECTION INCLUDES

A. Includes all labor, materials, and equipment to install an acrylic restora8on coa8ng over the properly prepared substrate.

B. See sec8on 011100 Summary of Work for a detailed scope of work.

1.2. RELATED SECTIONS

A. Sec8on 01110 – Summary of Work

1.3. REFERENCES

A. ASTM C 920 - Standard Specifica8on for Elastomeric Joint Sealants.

B. ASTM C 1250 - Standard Test Method for Nonvola8le Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.

C. ASTM D 1863 - Standard Specifica8on for Mineral Aggregate Used on Built-Up Roofs.

D. ASTM D 4479 - Standard Specifica8on for Asphalt Roof Coa8ngs - Asbestos-Free.

E. ASTM E 1980 - Standard Prac8ce for Calcula8ng Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces

F. ASTM G 21 - Standard Prac8ce for Determining Resistance of Synthe8c Polymeric Materials to Fungi.

G. SRI - Solar Reflectance Index calculated according to ASTM E 1980.

H. South Coast AQMD Standards.

I. SMACNA Architectural Sheet Metal Manual.

J. ANSI/SPRI ES-1 - Tes8ng and Cer8fica8on Lis8ng of Shop Fabricated Edge Metal

K. Na8onal Roofing Contractors Associa8on (NRCA) - Roofing and Waterproofing Manual.

1.4. SYSTEM DESCRIPTION

A. Mineral Surface Roof Restora8on: Renova8on work includes:
   1. Surface prepara8on: Pressure wash the exis8ng surface remove dirt, and debris.
   2. Fascia/Gravel Stop Edges: Cut back edges, prime, three course with mas8c & mesh, install white roofing granules into fresh mas8c.
   3. Parapets and Ver8cal Surfaces: Repair as needed, prime, three course with mas8c & mesh all laps, corners & transi8ons. Install white roofing granules into fresh mas8c.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.

5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with primer/ mas8c/membrane.
6. Primer: Prime en8re roof surface.
7. Coa8ng: Install white acrylic coa8ng over the en8re roof surface.

1.5. SUBMITTALS

A. Submit under provisions of Sec8on 013000.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Prepara8on instruc8ons and recommenda8ons.
2. Storage and handling requirements and recommenda8ons.
3. Installa8on methods.

C. Shop Drawings: Submit shop drawings including installa8on details of roofing, flashing, fastening, insula8on and vapor barrier, including nota8on of roof slopes and fastening pajerns of insula8on and base modified bitumen membrane, prior to job start.

D. LEED Submijals: Provide documenta8on of how the requirements of Credit will be met:
1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
2. Product data and cer8fica8on lejer indica8ng percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
3. Product reflec8vity and emissivity criteria to qualify for one point under the LEED credit category, Credit 7.2, Landscape & Exterior Design to Reduce Heat Island - Roof.

E. Verifica8on Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, represen8ng actual product, and color.

F. Manufacturer's Cer8ficates: Cer8fy products meet or exceed specified requirements.

G. Provide wrijen cer8fica8on from the roofing system manufacturer cer8fying the applicator is currently authorized to install the specified roof system and ability to provide the specified warranty.

H. Sample Warranty: Provide an unexecuted copy of the warranty specified for this project clearly sta8ng the terms required of the owner, contractor, and manufacturer.

I. Closeout Submijals: Provide manufacturer's maintenance instruc8ons that include recommenda8ons for periodic inspec8on and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in prepara8on and submijal of roof installa8on acceptance cer8fica8on as may be necessary in connec8on with fire and extended coverage insurance on roofing and associated work.

1.6. QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifica8ons: Manufacturer: Company specializing in manufacturing products specified in this sec8on with documented ISO 9001 cer8fica8on and minimum twelve years and experience.

C. Installer Qualifica8ons: Company specializing in performing Work of this sec8on with minimum five years documented experience and a cer8fied Pre-Approved Garland Contractor.

D. Installer's Field Supervision: Maintain a full-8me Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.

E. Product Cer8fica8on: Provide manufacturer's cer8fica8on that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compa8ble with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limita8ons: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in wri8ng by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's wrijen approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7. PRE-INSTALLATION CONFERENCE

A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installa8on and associated work.

B. Require ajendance of installers of deck or substrate construc8on to receive roofing, installers of rookop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representa8ve.

C. Objec8ves include:
1. Review foreseeable methods and procedures related to roofing work, including set up and mobiliza8on areas for stored material and work area.
2. Tour representa8ve areas of roofing substrates, inspect and discuss condi8on of substrate, roof drains, curbs, penetra8ons and other preparatory work.
3. Review structural loading limita8ons of deck and inspect deck for loss of flatness and for required ajachment.
4. Review roofing system requirements, Drawings, Specifica8ons and other Contract Documents.
5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facili8es needed to make progress and avoid delays.
6. Review required inspec8on, tes8ng, cer8fying procedures.
7. Review weather and forecasted weather condi8ons and procedures for coping with unfavorable condi8ons, including possibility of temporary roofing.
8. Record conference including decisions and agreements reached. Furnish a copy of records to each party ajending.

1.8. DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact un8l ready for installa8on.

B. Store all roofing materials in a dry place, on pallets or raised plalorms, out of direct exposure to the elements un8l 8me of applica8on. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instruc8ons of the manufacturer prior to their applica8on or installa8on. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the applica8on.

D. Store at room temperature wherever possible, un8l immediately prior to installing the roll. During

winter, store materials in a heated loca8on with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/ Engineer.

F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.9. PROJECT CONDITIONS

A. Maintain environmental condi8ons (temperature, humidity, and ven8la8on) within limits recommended by manufacturer for op8mum results. Do not install products under environmental condi8ons outside manufacturer's absolute limits.

B. Weather Condi8on Limita8ons: Do not apply roofing system during inclement weather or when a 40 percent chance of precipita8on or greater is expected.

C. Proceed with roofing work only when exis8ng and forecasted weather condi8ons will permit unit of work to be installed in accordance with manufacturer's recommenda8ons and warranty requirements.

D. Do not expose materials vulnerable to water or sun damage in quan88es greater than can be weatherproofed during same day.

E. When applying materials with spray equipment, take precau8ons to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
   1. Close air intakes into the building.
   2. Have a dry chemical fire ex8nguisher available at the jobsite.
   3. Post and enforce "No Smoking" signs.

F. Avoid inhaling spray mist; take precau8ons to ensure adequate ven8la8on.

G. Protect completed roof sec8ons from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent rela8ve humidity or un8l fully cured.

H. Take precau8ons to ensure that materials do not freeze.

I. Minimum temperature for applica8on is 40 degrees F (4 degrees C) and rising for solvent based materials and 50 degrees F (10 degrees C) and rising for water based.

1.10. WARRANTY

A. Upon comple8on of the work, provide the Manufacturer's Warranty.
   1. Warranty Period:
      a. 5 years from date of acceptance.

B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
   1. Warranty Period:
      a. 3 years from date of acceptance.

2. PRODUCTS

2.1. MANUFACTURERS

A. Acceptable Manufacturer or equal: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Local Representa8ve: Richard Jones: (559) 647-1196 rjones@garlandind.com Web Site:www.garlandco.com

B. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If no manufacturer and products are listed, the bid may be accepted only with the use of products specified.
   1. Bidder will not be allowed to change materials aker the bid opening date.
   2. If alternate products are included in the bid, the products must be submijed a minimum of seven (7) days prior to the bid date for review and be equal to or exceed the products specified. Suppor8ng technical data shall be submijed to the Architect/ Owner for approval prior to acceptance.
   3. In making a request for subs8tu8on, the Bidder/Roofing Contractor represents that it has:
      a. Personally inves8gated the proposed product or method, and determined that it is equal or superior in all respects to that specified.
      b. Will provide the same guarantee for subs8tu8on as for the product and method specified.
      c. Will coordinate installa8on of accepted subs8tu8on in work, making such changes as may be required for work to be completed in all respects.
      d. Will waive all claims for addi8onal cost related to subs8tu8on, which consequently become apparent.
      e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the subs8tu8on.
      f. Will reimburse the Owner for all redesign cost by the Architect for accommoda8on of the subs8tu8on.
   4. Architect/ Owner reserves the right to be the final authority on the acceptance or rejec8on of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
   5. Failure to submit subs8tu8on package, or any por8on thereof requested, will result in immediate disqualifica8on and considera8on for that par8cular contractors request for manufacturer subs8tu8on.

2.2. ROOF RESTORATION SYSTEM MINERAL SURFACE ROOFS

A. Asphalt Primer: Install primer at a rate of ½ gallon per 100 square feet at all areas to be three coursed or patched with torch applied materials.
   1. Garla Prime VOC

B. Acrylic Primer: Install at a rate of 1/2 gallon per 100 square feet to all newly installed roof areas.
   1. Primer: Garla-Block

C. Coa8ng Base Coat: Install at a rate of 1.5 gallons per 100 square feet.
   1. Coa8ng: Pyramic Plus Lo

D. Coa8ng Top Coat. Install at a rate of 1.5 gallons per 100 square feet.
   1. Coa8ng: Pyramic Plus Lo

E. Mas8c: Install three course treatment at all penetra8ons and wall flashing laps.
   1. Flashing Bond Mas8c

F. Mesh: Install three course treatment at all penetra8ons and wall flashing laps.
   1. Garmesh 6”

G. Capsheet: Mineral surfaced torch applied modified membrane used for patching of all blister areas in the exis8ng roof.
   1. Stressply IV Mineral

2.3. ACCESSORIES:

A. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel, Fasteners shall be self-clinching type of penetra8ng type as recommended by the deck manufacturer. Fasten nails and fasteners flush-driven through flat metal discs not less than 1 inch (25 mm) diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than 1 inch (25 mm) diameter are used.

B. Urethane Sealant - Tuff-Stuff: One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints.
   1. Tensile Strength, ASTM D 412: 250 psi
   2. Elonga8on, ASTM D 412: 950%
   3. Hardness, Shore A ASTM C 920: 35
   4. Adhesion-in-Peel, ASTM C 92: 30 pli

C. Pitch Pocket Sealer - Seal-Tite: Two part, 100% solids, self-leveling, polyurethane sealant for filling pitch pans as recommended and furnished by the membrane manufacturer.
   1. Durometer, ASTM D 2240: 40-50 Shore
   2. Elonga8on, ASTM D 412: 250%
   3. Tensile Strength, ASTM D 412: 200 @ 100 mil

2.4. EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Flashing Boot - Rubber8te Flashing Boot: Neoprene pipe boot for sealing single or mul8ple pipe penetra8ons adhered in approved adhesives as recommended and furnished by the membrane manufacturer.

B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.

C. Pitch pans, Rain Collar 24 gauge stainless or 20oz (567gram) copper. All joints should be welded/ soldered water8ght. See details for design.

D. Drain Flashings should be 4lb (1.8kg) sheet lead formed and rolled.

E. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.

F. Liquid Flashing - Tuff-Flash: An asphal8c-polyurethane, low odor, liquid flashing material designed for specialized details unable to be waterproofed with typical modified membrane flashings.
   1. Tensile Strength, ASTM D 412: 400 psi
   2. Elonga8on, ASTM D 412: 300%

3. Density @77 degrees F 8.5 lb/gal typical

G. Fabricated Flashings: Fabricated flashings and trim are specified in Sec8on 07620.
1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Associa8on "Copper in Architecture - Handbook" as applicable.

H. Manufactured Roof Special8es: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Sec8on 07710.
1. Manufactured roof special8es shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

3. EXECUTION

3.1. EXAMINATION

A. Do not begin installa8on un8l substrates have been properly prepared.

B. Verify that work penetra8ng the roof deck, or which may otherwise affect the roofing, has been properly completed.

C. If substrate prepara8on is the responsibility of another installer, no8fy Architect of unsa8sfactory prepara8on before proceeding.

3.2. ROOF PREPARATION AND REPAIR

A. General:
1. Repair exis8ng roof flashings at curbs and parapet walls
2. Remove all wet, deteriorated, blistered or delaminated roofing membrane or insula8on and fill in any low spots occurring as a result of removal work to create a smooth, even surface for applica8on of new roof membranes.
3. Install new wood nailers as necessary to accommodate insula8on/recovery board or new nailing pajerns.
4. Exis8ng roof surfaces shall be primed as necessary and allowed to dry prior to installing the roofing system.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project condi8ons.

C. Repair all defects such as deteriorated roof decks; replace saturated insula8on board, replace loose or brijle membrane or membrane flashings. Verify that exi8ng condi8ons meet the following requirements:
1. Exis8ng membrane is either fully adhered or that the membranes mechanical fasteners are secured and func8onal.
2. Applica8on of roofing materials over a brijle roof membrane is not recommended.

D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.

E. Clean and seal all parapet walls, gujers and coping caps, and repair any damaged metal where necessary. Seal water8ght all fasteners, pipes, drains, vents, joints and penetra8ons where water could enter the building envelope.

F. Clean the en8re roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solu8on of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solu8on. Allow roof to dry thoroughly before con8nuing.

G. Repair exis8ng roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

3.3. INSTALLATION

A. General Installa8on Requirements:
1. Install in accordance with manufacturer's instruc8ons. Apply to minimum coa8ng thickness required by the manufacturer.
2. Cooperate with manufacturer, inspec8on and test agencies engaged or required to perform services in connec8on with installing the roof system.
3. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regula8on and specified insurance requirements.
4. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installa8on of the roofing system.
5. All primers must be top coated within 24 hours of applica8on. Re-prime If more 8me passes aker priming.
6. Keep roofing materials dry during applica8on. Phased construc8on can be allowed as long as no, more than 7 days pass between coats excluding primers.
7. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sec8ons under Related Work.
8. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sec8ons under Related Work.

B. Mineral Surface Roof Restora8on: Renova8on work includes:
1. Surface prepara8on: Pressure wash the exis8ng surface remove dirt, and debris.
2. Fascia/Gravel Stop Edges: Cut back edges 2”, prime with Garla-Prime VOC allow to dry, three course with Flashing Bond mas8c & Garmesh, install white roofing granules into fresh mas8c.
3. Parapets and Ver8cal Surfaces: Repair as needed, prime with Garla Prime VOC, three course with Flashing Bond mas8c & Garmesh all laps, corners & transi8ons. Install white roofing granules into fresh mas8c.
4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with Garla Prime VOC primer/ Flashing Bond mas8c/Stressply membrane.
6. Primer: Prime new repair areas with Garla-Block primer.
7. Coa8ng: Install Pyramic white acrylic coa8ng over the en8re roof surface at a rate of 1.5 gallons per 100 sq k base coat and 1.5 gallons per 100 sq k top coat.
   a. Apply Pyramic Acrylic Coa8ng in a uniform manner.
   b. Use special ajen8on to coa8ng flashings and other cri8cal areas to build adequate membrane thickness.
   c. Use mul8ple coats on ver8cals to prevent sagging.
   d. Apply at 3.0 gallons per 100 sq k. over the en8re roof surface in two coats.

3.4. INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Fabricated Flashings: Fabricated flashings and trim are provided as specified in Sec8on 07620.
   1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Copper Development Associa8on "Copper in Architecture - Handbook" as applicable.

B. Manufactured Roof Special8es: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are provided as specified in Sec8on 07710.
   1. Manufactured roof special8es shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Na8onal Roofing Contractor's Associa8on "Roofing and Waterproofing Manual" as applicable.

C. Metal Edge:
   1. Inspect the nailers to assure proper ajachment and configura8on.
   2. Run one ply over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails at 8 inches (203 mm) o.c.
   3. Install con8nuous cleat and fasten at 6 inches (152 mm) o.c.
   4. Install new metal edge hooked to con8nuous cleat and set in bed of roof cement. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.
   5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
   6. Strip in flange with base flashing ply covering en8re flange in bitumen with 6 inches (152 mm) on to the field of roof. Assure ply laps do not coincide with metal laps.
   7. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Seal outside edge with rubberized cement.

D. Coping Cap:
   1. Minimum flashing height is 8 inches (203 mm) above finished roof height. Maximum flashing height is 24 inches (609 mm). Prime ver8cal wall at a rate of 100 square feet per gallon and allow to dry.
   2. Set cant in bitumen. Run all field plies over cant a minimum of 2 inches (50 mm).
   3. Install base flashing ply covering en8re wall and wrapped over top of wall and down face with 6 inches (152 mm) on to field of the roof and set in cold asphalt. Nail membrane at 8 inches (203 mm) o.c.
   4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course applica8on of mas8c and mesh at all seams and allow to cure and install white roofing granules into the fresh mas8c.
   5. Install coping cap per manufacturer's recommenda8ons.

E. Surface Mounted Counterflashing:
   1. Minimum flashing height is 8 inches (203 mm) above finished roof height. Maximum flashing height is 24 inches (609 mm). Prime ver8cal wall at a rate of 100 square feet per gallon and allow to dry.
   2. Set cant in bitumen. Run all field plies over cant a minimum of 2 inches (50 mm).
   3. Install base flashing ply covering wall set in bitumen with 6 inches (152 mm) on to field of the roof.
   4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course applica8on of mas8c and mesh at all ver8cal seams and allow to cure and install white roofing granules into the fresh mas8c.
   5. Apply butyl tape to wall behind flashing. Secure termina8on bar through flashing, butyl tape and into wall. Alterna8vely use caulk to replace the butyl tape.
   6. Secure counterflashing set on butyl tape above flashing at 8 inches (203 mm) o.c. and caulk

top of counterflashing.

F. Curb Detail/Air Handling Sta8on:
1. Minimum curb height is 8 inches (203 mm) above finished roof height. Prime ver8cal at a rate of 100 square feet per gallon and allow to dry.
2. Set cant in bitumen. Run all field plies over cant a minimum of 2 inches (50 mm).
3. Install base flashing ply covering curb set in bitumen with 6 inches (152 mm) on to field of the roof.
4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course applica8on of mas8c and mesh at all ver8cal seams and allow to cure and install white roofing granules into the fresh mas8c.
5. Install pre-manufactured counterflashing with fasteners and neoprene washers or per manufacturer's recommenda8ons.
6. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

G. Roof Drain:
1. Plug drain to prevent debris from entering plumbing.
2. Taper insula8on to drain minimum of 24 inches (609 mm) from center of drain.
3. Install two base flashing plies (40 inch square minimum) in bitumen.
4. Set lead/copper flashing (30 inch square minimum) in 1/4 inch (6 mm) bed of mas8c. Run lead/copper into drain a minimum of 2 inches (50 mm). Prime lead/copper at a rate of 100 square feet per gallon and allow to dry.
5. Run roof system plies over drain. Cut out plies inside drain bowl.
6. Install modified membrane (48 inch square minimum) in bitumen.
7. Install clamping ring and assure that all plies are under the clamping ring.
8. Remove drain plug and install strainer.

H. Plumbing Stack:
1. Minimum stack height is 12 inches (609 mm).
2. Run roof system over the en8re surface of the roof. Seal the base of the stack with elastomeric sealant.
3. Prime flange of new sleeve. Install properly sized sleeves set in 1/4 inch (6 mm) bed of roof cement.
4. Install base flashing ply in bitumen.
5. Install membrane in bitumen.
6. Caulk the intersec8on of the membrane with elastomeric sealant.
7. Turn sleeve a minimum of 1 inch (25 mm) down inside of stack.

3.5. CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose par8cles and other debris resul8ng from these opera8ons.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this sec8on.

3.6. PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and u8li8es.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over exis8ng roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addi8on to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permijed over new roofing.

3.7. FIELD QUALITY CONTROL

A. Require ajendance of roofing materials manufacturers' representa8ves at site during installa8on of the roofing system a minimum of two (2) days per week.

B. Perform field inspec8on as required under provisions of manufacturers requirements.

C. Correct defects or irregulari8es discovered during field inspec8on.

3.8. FINAL INSPECTION

A. At comple8on of roofing installa8on and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representa8ve and others directly concerned with performance of roofing system.

B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetra8ons, walls, curbs and other equipment. Iden8fy all items requiring correc8on or comple8on and furnish copy of list to each party in ajendance.

C. If core cuts verify the presence of damp or wet materials, the installer shall be required to replace the damaged areas at his own expense.

D. Repair or replace deteriorated or defec8ve work found at 8me above inspec8on as required to a produce an installa8on that is free of damage and deteriora8on at 8me of Substan8al Comple8on and according to warranty requirements.

E. Architect upon comple8on of correc8ons.

F. Following the final inspec8on, provide wrijen no8ce of acceptance of the installa8on from the roofing system manufacturer.

3.9. PROTECTION

A. Protect installed products un8l comple8on of project.

B. Touch-up, repair or replace damaged products before Substan8al Comple8on.

3.10. SCHEDULES

A. Coa8ng:
   1. Pyramic: White Elastomeric Roof Coa8ng
      a. Pyramic Plus Lo Acrylic Roof Coa8ng: White, Non Toxic, Fire Retardant Roof Coa8ng.
         1. Non Vola8le 63%

2. Density 11.7lb. / gal
3. VOC <50 gal./l
4. Reflectance 0.83
5. Emijance 0.90
6. SRI 104

3.11. ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
   1. Owner: _____.
   2. Address: _____.
   3. Building Name/Type: _____.
   4. Address: _____.
   5. Area of Work: _____.
   6. Acceptance Date: _____.
   7. Warranty Period: **Three Years**.
   8. Expira8on Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defec8ve materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and condi8ons herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defec8ve work and as are necessary to maintain said work in a water8ght condi8on.

D. This Warranty is made subject to the following terms and condi8ons:
   1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
      a. lightning;
      b. peak gust wind speed exceeding **120 MPH**;
      c. fire;
      d. failure of roofing system substrate, including cracking, sejlement, excessive deflec8on, deteriora8on, and decomposi8on;
      e. faulty construc8on of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge condi8ons and penetra8ons of the work;
      f. vapor condensa8on on bojom of roofing; and
      g. ac8vity on roofing by others, including construc8on contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
   2. When work has been damaged by any of foregoing causes, Warranty shall be null and void un8l such damage has been repaired by Roofing Installer and un8l cost and expense thereof have been paid by Owner or by another responsible party so designated.
   3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequen8al damages to building or building contents resul8ng from leaks or faults or defects of work.

4. During Warranty Period, if Owner allows altera8on of work by anyone other than Roofing Installer, including cuwng, patching, and maintenance in connec8on with penetra8ons, ajachment of other work, and posi8oning of anything on roof, this Warranty shall become null and void on date of said altera8ons, but only to the extent said altera8ons affect work covered by this Warranty. If Owner engages Roofing Installer to perform said altera8ons, Warranty shall not become null and void unless Roofing Installer, before star8ng said work, shall have no8fied Owner in wri8ng, showing reasonable cause for claim, that said altera8ons would likely damage or deteriorate work, thereby reasonably jus8fying a limita8on or termina8on of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly no8fy Roofing Installer of observed, known, or suspected leaks, defects, or deteriora8on and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deteriora8on.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION

SECTION 07563
FLUID APPLIED ROOFING RESTORATION (METAL)

1. GENERAL

1.1. SECTION INCLUDES

A. Includes all labor, materials, and equipment to install a Fluid Applied Membrane Roof Restora8on System over the properly prepared substrate.

B. See sec8on 011100 Summary of Work for a detailed scope of work.

1.2. RELATED SECTIONS

A. Sec8on 01 11 00 – Summary of Work

B. Sec8on 01 30 00 - SubmiPals

C. Sec8on 06 10 00 - Rough Carpentry

D. Sec8on 07 22 00 - Roof Insula8on

E. Sec8on 07 62 00 - Sheet Metal Flashing and Trim

1.3. REFERENCES

A. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.

B. ASTM C 92 - Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials.

C. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.

D. ASTM C 920 - Standard Specifica8on for Elastomeric Joint Sealants.

E. ASTM D 75 - Standard Prac8ce for Sampling Aggregates.

F. ASTM D 93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester.

G. ASTM D 562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.

H. ASTM D 624 - Standard Test Method for Tear Strength of Conven8onal Vulcanized Rubber and Thermoplas8c Elastomers

I. ASTM D 1002 - Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).

J. ASTM D 1863 - Standard Specifica8on for Mineral Aggregate Used on Built-Up Roofs.

K. ASTM D 2196 - Standard Test Methods for Rheological Proper8es of Non-Newtonian Materials by Rota8onal (Brookfield type) Viscometer.

L. ASTM E 1980 - Standard Prac8ce for Calcula8ng Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces

M. SRI - Solar Reflectance Index calculated according to ASTM E 1980.

N. South Coast AQMD Standards.

O. SMACNA Architectural Sheet Metal Manual.

P. Na8onal Roofing Contractors Associa8on (NRCA) - Roofing and Waterproofing Manual.

1.4. SYSTEM DESCRIPTION

A. Metal Surface Roof Restora8on: Renova8on work includes:
1. Surface prepara8on: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
2. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
3. Primer: Prime en8re roof surface.
4. Base coat: Apply base coat and polyester reinforcement on seams and around penetra8ons/ let cure/Apply base coat over the en8re roof surface/let cure.
5. Topcoat: Apply coa8ng over the en8re roof surface.

1.5. SUBMITTALS

A. Submit under provisions of Sec8on 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Prepara8on instruc8ons and recommenda8ons.
2. Storage and handling requirements and recommenda8ons.
3. Installa8on methods.

C. Shop Drawings: Submit shop drawings including installa8on details of fluid applied roofing and flashing prior to job start.

D. LEED SubmiPals: Provide documenta8on of how the requirements of Credit will be met:
1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
2. Product data and cer8fica8on lePer indica8ng percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
3. Product reflec8vity and emissivity criteria to qualify for one point under the LEED credit category, Credit 7.2, Landscape & Exterior Design to Reduce Heat Island - Roof.

E. Verifica8on Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, represen8ng actual product, and color.

F. Closeout SubmiPals: Provide manufacturer's maintenance instruc8ons that include recommenda8ons for periodic inspec8on and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in prepara8on and submiPal of roof installa8on acceptance cer8fica8on as may be necessary in connec8on with fire and extended coverage insurance on roofing and associated work.

1.6. QUALITY ASSURANCE

A. Perform Work in accordance with manufacturer's current Applica8on and Installa8on Guidelines and the NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifica8ons: Manufacturer: Company specializing in manufacturing products specified in this sec8on with documented ISO 9001 cer8fica8on and minimum twelve years and experience.

C. Installer Qualifica8ons: Company specializing in performing Work of this sec8on with minimum five years documented experience and a cer8fied Pre-Approved Garland Contractor.

D. Installer's Field Supervision: Maintain a full-8me Supervisor/Foreman on the job site during all phases of roofing work while roofing work is in progress.

E. Product Cer8fica8on: Provide manufacturer's cer8fica8on that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compa8ble with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limita8ons: Obtain all components of the roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in wri8ng by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's wriPen approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7. PRE-INSTALLATION CONFERENCE

A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installa8on and associated work.

B. Require aPendance of installers of deck or substrate construc8on to receive roofing, installers of rookop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representa8ve.

C. Objec8ves include:
1. Review foreseeable methods and procedures related to roofing work, including set up and mobiliza8on areas for stored material and work area.
2. Tour representa8ve areas of roofing substrates, inspect and discuss condi8on of substrate, roof drains, curbs, penetra8ons and other preparatory work.
3. Review structural loading limita8ons of the deck and inspect the deck for loss of flatness and for required aPachment.
4. Review roofing system requirements, Drawings, Specifica8ons and other Contract Documents.
5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facili8es needed to make progress and avoid delays.
6. Review required inspec8on, tes8ng, cer8fying procedures.
7. Review weather and forecasted weather condi8ons and procedures for coping with unfavorable condi8ons, including possibility of temporary roofing.
8. Record conference including decisions and agreements reached. Furnish a copy of records to each party aPending.

1.8. DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact un8l ready for installa8on.

B. Store all roofing materials in a dry place, on pallets or raised plalorms, out of direct exposure to the elements un8l 8me of applica8on. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instruc8ons of the manufacturer prior to their applica8on or installa8on. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the applica8on.

D. Storage temperatures should be between 60° F to 80° F (15.6° C to 26.7° C). Indoor ven8lated storage is recommended. Ensure jobsite storage is in a shaded and ven8lated area. Do not store in direct sunlight Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/ Engineer.

1.9. PROJECT CONDITIONS

A. Maintain environmental condi8ons (temperature, humidity, and ven8la8on) within limits recommended by the manufacturer for op8mum results. Do not install products under environmental condi8ons outside manufacturer's absolute limits.

B. Weather Condi8on Limita8ons: Product applica8on must not be done when rain or other condi8ons such as fog or heavy dew are possible within a 24 hour period. Roof surface must be at least 6 Fahrenheit degrees or 3 Celsius degrees above the dew point and rising.

C. Proceed with roofing work only when exis8ng and forecasted weather condi8ons will permit units of work to be installed in accordance with manufacturer's recommenda8ons and warranty requirements.

D. Do not expose materials vulnerable to water or sun damage in quan88es greater than can be weatherproofed during the same day.

E. When applying materials with spray equipment, take precau8ons to prevent over spray from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
   1. Close air intakes into the building.
   2. Have a dry chemical fire ex8nguisher available at the jobsite.
   3. Post and enforce "No Smoking" signs.

F. Avoid inhaling spray mist; take precau8ons to ensure adequate ven8la8on.

G. Protect completed roof sec8ons from foot traffic for a period of at least 48 hours at 75° F (24° C) and 50 percent rela8ve humidity or un8l fully cured.

H. Take precau8ons to ensure that materials do not freeze.

I. Minimum temperature for applica8on of LiquiTec coa8ng is 50° F (10° C) and rising.

1.10. WARRANTY

A. Warranty Period: 10 years.
   1. Upon comple8on of the work, provide the Manufacturer's wriPen and signed limited labor and materials Warranty, warran8ng that, if a leak develops in the roof during the term of this warranty, due either to defec8ve material or defec8ve workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defec8ve area to a water8ght condi8on.
      a. Metal Surface Roof Restora8on:

B. Warranty Period: Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
   1. Warranty Period:
      a. 3 years from date of acceptance.

2. PRODUCTS

2.1. MANUFACTURERS

A. Acceptable Manufacturer: The Garland Company, Inc.; 3800 E. 91st St., Cleveland, OH 44105. Local Representa8ve: Rich Jones Phone: (559) 647-1196. rjones@garlandco.com Web Site: www.garlandco.com.

B. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If no manufacturer and products are listed, the bid may be accepted only with the use of products specified.
   1. Bidder will not be allowed to change materials aker the bid opening date.
   2. If alternate products are included in the bid, the products must be equal to or exceed the products specified. Suppor8ng technical data shall be submiPed to the Architect/ Owner for approval prior to acceptance.
   3. In making a request for subs8tu8on, the Bidder/Roofing Contractor represents that it has:
      a. Personally inves8gated the proposed product or method, and determined that it is equal or superior in all respects to that specified.
      b. Will provide the same guarantee for subs8tu8on as for the product and method specified.
      c. Will coordinate installa8on of accepted subs8tu8on in work, making such changes as may be required for work to be completed in all respects.
      d. Will waive all claims for addi8onal cost related to subs8tu8on, which consequently become apparent.
      e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the subs8tu8on.
      f. Will reimburse the Owner for all redesign cost by the Architect for accommoda8on of the subs8tu8on.
   4. Architect/ Owner reserves the right to be the final authority on the acceptance or rejec8on of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
   5. Failure to submit subs8tu8on package, or any por8on thereof requested, will result in immediate disqualifica8on and considera8on for that par8cular contractors request for manufacturer subs8tu8on.

2.2. METAL SURFACE ROOF RESTORATION

A. LiquiTec:
1. Primer: Metal Roof Primer (for priming metal components only) -
2. Base Coa8ng: LiquiTec Base (Gray)
3. Coa8ng: LiquiTec Base (Gray); LiquiTec (White)
4. Flashing (or steep slope applica8ons greater than 2:12): LiquiTec FG White; LiquiTec FG Gray
5. Reinforcement: Par8al reinforcement on metal panel seams only.
   a. Polyester Reinforcement

2.3. ACCESSORIES:

A. Roof Insula8on: In accordance with Sec8on 07220.

B. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel, Fasteners shall be self-clinching type of penetra8ng type as recommended by the deck manufacturer. Fasten nails and fasteners flush-driven through flat metal discs not less than 1 inch (25 mm) diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than 1 inch (25 mm) diameter are used.

C. Silicone Polymer Hybrid Sealant and Mas8c - Green-Lock Sealant XL: One part, 100% solids, non-sag sealant as approved and furnished by the sealant manufacturer for cracks, movement and non-movement joints.
1. Service Temp -40°F to 200°F (-40°C to 93°C)
2. Elonga8on, ASTM D 412: 550%
3. Hardness, Shore A, ASTM C 661: 24 +/-3

D. Urethane Adhesive - Green-Lock Structural Adhesive: Single component, 100% solids structural adhesive as furnished and recommended by the membrane manufacturer.
1. Elonga8on, ASTM D 412: 300%
2. Hardness, Shore A, ASTM C 920: 50
3. Shear Strength, ASTM D 1002: 300 psi

E. Silicone Dampproofing - Seal-A-Pore HP: Transparent and colorless solu8on designed to damp-proof above grade masonry surfaces as recommended and furnished by the membrane manufacturer.
1. Density @ 77° F 8.4 lb/gal min.
2. Viscosity (Zahn #2 cup) Typical 14 sec.

F. Acrylic Damp-Proofing Tuff-Coat: Damp-proofing that provides heavy body protec8on while bridging small hairline cracks and masonry imperfec8ons as recommended and furnished by the membrane manufacturer.
1. Density @ 77° F 12.25 lb/gal typical
2. Viscosity, ASTM D 562: 95 KU

G. Butyl Tape: 100% solids, asbestos free and compressive tape designed to seal as recommended and furnished by the membrane manufacturer.

H. Non-Shrink Grout: GarRock all-weather fast sexng chemical ac8on concrete material to fill pitch pans.
1. Flexural Strength, ASTM C 78: (modified) 7 days 1100psi
2. High Strength, ASTM C 109: (modified) 24 days 8400lbs (3810kg)

I. Pitch Pocket Sealer - Seal-Tite: One-part, 100% solids, self-leveling, polyurethane sealant.

J. Glass Fiber Cant - Glass Cant: Con8nuous triangular cross Sec8on made of inorganic fibrous glass used as a cant strip as recommended and furnished by the membrane manufacturer.

2.4. EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Flashing Boot - Rubber8te Flashing Boot: Neoprene pipe boot for sealing single or mul8ple pipe penetra8ons adhered in approved adhesives as recommended and furnished by the membrane manufacturer.

B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.

C. Pitch pans, Rain Collar 24 gauge stainless or 20oz (567gram) copper. All joints should be welded/ soldered water8ght. See details for design.

D. Drain Flashing should be 4lb (1.8kg) sheet lead formed and rolled.

E. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.

F. Fabricated Flashing: Fabricated flashings and trim are specified in Sec8on 07620.
   1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Associa8on "Copper in Architecture - Handbook" as applicable.

G. Manufactured Roof Special8es: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Sec8on 07710.
   1. Manufactured roof special8es shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

3. EXECUTION

3.1. EXAMINATION

A. Do not begin installa8on un8l substrates have been properly prepared.

B. Verify that work penetra8ng the roof deck, or which may otherwise affect the roofing, has been properly completed.

C. If substrate prepara8on is the responsibility of another installer, no8fy the Architect of unsa8sfactory prepara8on before proceeding.

3.2. ROOF PREPARATION AND REPAIR

A. General: All necessary field and flashing repairs must be done according to good construc8on prac8ces, including the removal of all wet insula8on and defec8ve materials as iden8fied through a moisture detec8on survey such as an infrared scan and replacement with like-materials.
   1. Remove damaged roof flashings from curbs and parapet walls down to the surface of the roof. Remove damaged exis8ng flashings at roof drains and roof penetra8ons.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project condi8ons.

C. Repair all defects such as deteriorated roof decks, saturated materials, loose or briPle membrane or membrane flashings, etc. Verify that exis8ng condi8ons meet the following requirements:
   1. The mechanical fasteners are secured and func8onal.
   2. Applica8on of roofing materials over a briPle, damaged or poor condi8on roof membrane is not permiPed.

D. Remove all loose dirt and foreign debris from the roof surface. Do not damage the roof membrane in the cleaning process.

E. Clean and seal all parapet walls, guPers and coping caps, and repair any damaged metal where necessary. Seal water8ght all fasteners, pipes, drains, vents, joints and penetra8ons where water could enter the building envelope.

F. Confirm local water run-off ordinances and restric8ons prior to cleaning the roof. Clean the en8re roof surface by removing all dirt, algae, mold, moss, paint, oil, talc, rust or other foreign substance. Use a bio-degradable cleaner like Simple Green Oxy Solve when necessary and warm water. Scrub heavily soiled areas with a brush. Power wash roof thoroughly with an industrial surface cleaner equipped with one piece balanced spray rota8ng jets for streak free close contact cleaning. Rinse with fresh water to completely remove all residuals. Allow the roof to dry thoroughly before con8nuing.

G. Repair exis8ng roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects must be repaired/renovated and be made water8ght. Any repairs must be performed only with materials compa8ble with the fluid-applied roofing restora8on system.

H. Power washing of metal roof surfaces to remove all loose rust or scale is mandatory before applica8on. Use a high volume air broom or compressed air to remove residual dust rust perfora8ons, etc. Deteriorated metal roof decks must be repaired or replaced prior to the applica8on of the coa8ng system.

3.3. INSTALLATION

A. General Installa8on Requirements:
   1. Install in accordance with manufacturer's current Applica8on and Installa8on Guidelines and technical data sheets, and the NRCA Roofing and Waterproofing Manual.
   2. Adequate coa8ng thickness is essen8al to performance. If the applicator is unfamiliar in gauging applica8on rates, we suggest that a controllable area be measured and the specified material be applied. In all cases, all minimum specified material must be applied and proper minimum dry film thicknesses must be achieved. Care must be taken to ensure that all areas completed including all flashings, roof penetra8ons, etc. are coated sufficiently to ensure a water8ght seal.
   3. Cooperate with manufacturer, inspec8on and test agencies engaged or required to perform services in connec8on with installing the roof system.
   4. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regula8on and specified insurance requirements.
   5. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore adjacent work damaged by installa8on of the roofing system.

6. All primers must be top coated within 24 hours of applica8on. Re-prime if more 8me passes aker priming.
7. Keep roofing materials dry during applica8on.
8. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sec8ons under Related Work.
9. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sec8ons under Related Work.

B. Metal Surface Roof Restora8on: Renova8on work includes:
1. Surface Prepara8on: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
   a. Remove rust by the most rigorous method suitable for the par8cular project and as approved by Garland.
   b. Tighten all fasteners and verify that neoprene washers are in place.
   c. Replace missing fasteners using oversize fasteners as necessary.
   d. Seal all fastener heads by applying a heavy dab of compa8ble sealant to the tops and around of all fastener heads.
   e. Repair gaps, holes and joints in the metal roof with appropriate patching materials.
   f. Completely remove exis8ng seam coa8ngs, mas8cs and sealants.
   g. Ensure skylights, scuppers, guPers, penetra8ons and structures are firmly secured, water8ght and in good working condi8on.
   h. Where necessary, install water deflec8ng crickets behind rookop mechanical units.
   i. All roof areas must promote posi8ve drainage.
   j. Previously coated roofs with well-adhered polyurethane or polyurea coa8ng surfacing must be solvent-wiped with acetone aker cleaning to reac8vate the surface for overcoa8ng.
2. Primer:
   a. Prime en8re roof surface with primer at 1/2 gallon per 100 SF.
3. Reinforcement: Treatment of field seams and around penetra8ons:
   a. Applica8on of 3-course base coa8ng on metal panel end laps, flashings and around penetra8ons.
      1. Verify that the surface to be coated is properly prepared.
      2. Determine where the first run of 6 inch (150 mm) wide Grip Polyester Sok reinforcement will be started and verify the surface is clean. For other details requiring reinforcement (such as drains, penetra8ons or curbs), 12 inch, 38 inch and 40 inch wide fabric reinforcement is available.
      3. Posi8on reinforcing fabric to roll out, apply coa8ng at 3.0 gal/100 sq. k. (1.22 L/m2) extending 4 inch. (100 mm) on each side of the lap to where the reinforcement is to be applied. Immediately roll reinforcement into the coa8ng and completely saturate the surface, ensuring full encapsula8on of fabric without pinholes, voids, openings or ver8cal fibers.
      4. Allow the product to cure before applying field coa8ng.
   b. Applica8on of seam tape with base coat on metal panel end laps, flashings and around penetra8ons.
      1. Verify that the surface to be coated is properly prepared.
      2. Remove the clear release liner from the back in workable sec8ons.
      3. Center 6 inch wide seam tape over the middle of the lap.
      4. Use care to install the tape uniformly. Do not stretch or cause air pockets, wrinkles or fish mouths.
      5. Apply pressure to tape star8ng at the center and work toward the outside edge

with a steel roller to ac8vate the bonding process.

6. Inspect the tape to ensure that it is properly installed. Verify edges are 8ghtly fixed to the surface. If any discrepancies are present, repair before the coa8ng is applied.
7. Saturate the tape with base coa8ng as specified.

c. Applica8on of base coat on uncrimped metal panel side laps:
1. Verify that the surface to be coated is properly prepared.
2. Restore the surface to a suitable condi8on if the roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coa8ngs.
3. Apply materials at specified dry film thickness.
4. Apply base coat at minimum 6 inch wide stripes over all seams, flashings and around penetra8ons at 2.0 gallons per 100 SF.
5. Use fabric reinforcement when panels are gapped and cannot be drawn 8ghtly together.
6. Allow to dry for a minimum of 24 hours before applying finish coats.
7. On ver8cal surfaces to achieve proper applica8on rate cut your applica8on into two coats to avoid sagging.

4. Coa8ng: Ensure the fluid-applied coverage rates are obtained throughout the en8re roof surface.
a. Material: Apply base coat in a uniform manner at 1 gallon per 100 SF over the en8re roof surface. Allow to cure thoroughly, but no more than 72 hours.
b. Apply a top coa8ng over base coat at 1.5 gallons per 100 SF.
c. Use special aPen8on to coa8ng flashings and other cri8cal areas to build adequate membrane thickness.
d. Use mul8ple coats or high build coa8ng on ver8cals or steep slopes to prevent sagging and to obtain the required total coverage rate.
e. Apply to Garland's minimum fluid-applied membrane thickness over the en8re roof surface.

5. Non-Skid Surface:
a. Apply coa8ng at 1.0 gallons per 100 SF and immediately broadcast dry roofing granules or 20-40 mesh silica sand at 30 lbs/sq into wet coa8ng and back-roll to set.

3.4. INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Fabricated Flashings: Fabricated flashings and trim are provided as specified in Sec8on 07620.
1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Copper Development Associa8on "Copper in Architecture - Handbook" as applicable.

B. Manufactured Roof Special8es: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are provided as specified in Sec8on 07710.
1. Manufactured roof special8es shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Na8onal Roofing Contractor's Associa8on "Roofing and Waterproofing Manual" as applicable.

C. Liquid Flashing:
1. Mask target area on roof membrane with tape.
2. Clean all non-porous areas with isopropyl alcohol.
3. Apply 32 wet mil base coat of liquid flashing over masked area.

4. Embed polyester reinforcement fabric into the base coat of the liquid flashing.
5. Apply 32 wet mil top coat of the liquid flashing material over the fabric extending 2 inches (51 mm) past the scrim in all direc8ons.

3.5. CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose par8cles and other debris resul8ng from these opera8ons.

B. Remove coa8ng markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this sec8on.

3.6. PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and u8li8es.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over exis8ng roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addi8on to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permiPed over new roofing.

3.7. FIELD QUALITY CONTROL

A. Require aPendance of roofing materials manufacturers' representa8ves at site during installa8on of the roofing system.

B. Perform field inspec8on and [and tes8ng] as required under provisions of Sec8on 01410.

C. Correct defects or irregulari8es discovered during field inspec8on.

3.8. FINAL INSPECTION

A. At comple8on of roofing installa8on and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representa8ve and others directly concerned with performance of roofing system.

B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetra8ons, walls, curbs and other equipment. Iden8fy all items requiring correc8on or comple8on and furnish a copy of the list to each party in aPendance.

C. If core cuts verify the presence of damp or wet materials, the installer shall be required to replace the damaged areas at his own expense.

D. Repair or replace deteriorated or defec8ve work found at 8me above inspec8on as required to produce an installa8on that is free of damage and deteriora8on at 8me of Substan8al Comple8on and according to warranty requirements.

E. No8fy Architect upon comple8on of correc8ons.

F. Following the final inspec8on, provide wriPen no8ce of acceptance of the installa8on from the roofing system manufacturer.

3.9. SCHEDULES

A. Primers:
1. Metal Primer - Metal Roof Primer: Fast drying water-based rust inhibi8ve primer.
   a. VOC: <65 g/L
   b. Weight/gal: 10 lbs ± 0.2
   c. Solids by Volume: 41% ± 2.0%
   d. Viscosity @ 77° F (25° C): 800 ± 200 cP

B. Base:
1. Base Coa8ng: LiquiTec Base: Mul8-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteris8cs:
   a. Elonga8on, ASTM D 412: 800%
   b. Tensile Strength, ASTM D 412: 2500 psi
   c. Tear Resistance, ASTM D 624: 449 lbs./in
   d. Low Temperature Flexibility, ASTM D 522: -60 degrees F (-51.1 degrees C)
   e. Hardness, ASTM D 2240 (Shore A): 80
   f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D 5635, 37 joules
   g. Sta8c Puncture Resistance (Fully Reinforced System): ASTM D 5602, 20 kg
   h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D 4073, 274 lbf
   i. Tensile Load Strain (Fully Reinforced System): ASTM D 4073, 193 lbf/in.
   j. Toughness: (Fully Reinforced System): 46 in.-lbf/in²
   k. Dry Film Thickness (Fully Reinforced System), 90-100 mils
   l. Lap Shear Strength (MB Seam with coa8ng): ASTM D 7379, 231 lbf/in.
   m. Density @ 77 degrees F (25 degrees C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
   n. Flash Point: ASTM D 93, 110 degrees F min. (43 degrees C)
   o. VOC: 0 g/l
   p. Microbial Resistance: ASTM G21, No Microbial Growth
   q. Water Leakage Resistance: ASTM D7281, Pass

C. Reinforcement:
1. Grip Polyester Sok: Sok polyester reinforcing fabric.
   a. Tensile Strength ASTM D 3766, 57.1 lbs (25.9 kg).
   b. Tear Strength, 16.1 lbs (7.30 kg).
   c. Elonga8on ASTM D 3786, 61.65%
   d. Weight per Area, 3 oz./sq yd. (102 g/m2)
   e. Mullen Burst, ASTM D 3786: 176 lbs. (80.2 kg)

D. Coa8ngs:
1. Coa8ng: LiquiTec: Mul8-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteris8cs:
   a. Elonga8on, ASTM D 412: 800%
   b. Tensile Strength, ASTM D 412: 2500 psi
   c. Tear Resistance, ASTM D 624: 449 lbs./in
   d. Low Temperature Flexibility, ASTM D 522: -60 degrees F (-51.1 degrees C)
   e. Hardness, ASTM D2240 (Shore A): 80

f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D 5635, 37 joules
g. Sta8c Puncture Resistance (Fully Reinforced System): ASTM D 5147, 135 lb/in
h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D 4073, 274 lbf
i. Tensile Load Strain (Fully Reinforced System): ASTM D 4073,193 lbf/in.
j. Toughness: (Fully Reinforced System): ASTM D 5147 46 in.-lbf/in²
k. Dry Film Thickness (Fully Reinforced System), 90-100 mils
l. Lap Shear Strength (MB Seam with coa8ng): ASTM D 7379, 231 lbf/in.
m. Density @ 77 degrees F (25 degrees C), ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
n. VOC: 0 g/l
o. Microbial Resistance: ASTM G21, No Microbial Growth
p. Water Leakage Resistance: ASTM D7281, Pass
q. Ini8al Reflectance: 0.84
r. Ini8al EmiPance: 0.88
s. Ini8al SRI: 105

E. Liquid Flashings
1. Coa8ng: LiquiTec FG: Mul8-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteris8cs:
a. Elonga8on, ASTM D 412: 800%
b. Tensile Strength, ASTM D 412: 2500 psi
c. Tear Resistance, ASTM D 624: 449 lbs./in
d. Low Temperature Flexibility, ASTM D 522: -60 degrees F (-51.1 degrees C)
e. Hardness, ASTM D 2240 (Shore A): 80
f. Dynamic Impact Resistance (Reinforced System): ASTM D 5635, 37 joules
g. Sta8c Puncture Resistance (Reinforced System): ASTM D 5602, 20 kg
h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D 4073, 274 lbf.
i. Tensile Load Strain (Fully Reinforced System): ASTM D 4073, 135 lbf.in.
j. Toughness: ASTM D 5147 46 in.-lbf/in².
k. Dry Film Thickness (Fully Reinforced System), 70-80 mils
l. Lap Shear Strength (MB Seam with coa8ng): ASTM D7379,
m. 231 lbf/in.
n. Density @ 77 degrees F (25 degrees C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
o. VOC: 0 g/l
p. Microbial Resistance: ASTM G 21, No Microbial Growth
q. Water Leakage Resistance: ASTM D7281, Pass

F. Walkway Surfacing: Topping.
1. Surfacing: Reflec8ve/Non-Skid
a. Silica sand/Non-Skid.
b. Roofing granules

G. Accessories:

1. Silicone Polymer Hybrid Sealant and Mas8c - Green-Lock Sealant XL: One part, 100% solids, non-sag sealant as approved and furnished by the sealant manufacturer for cracks, movement and non-movement joints.
a. Service Temp -40°F to 200°F (-40°C to 93°C)
b. Elonga8on, ASTM D 412: 550%
c. Hardness, Shore A, ASTM C 661: 24 +/-3

2. Modified Silane Sealant - Tuff-Stuff MS: One part, non-sag sealant as approved and furnished

by the membrane manufacturer for moving joints.

a. Tensile Strength, ASTM D 412: 250 psi
b. Elonga8on, ASTM D 412: 950%
c. Hardness, Shore A ASTM C 920: 35
d. Adhesion-in-Peel, ASTM C 92: 30 pli

3. Urethane Adhesive - Green-Lock Structural Adhesive: Single component, 100% solids structural adhesive as furnished and recommended by the membrane manufacturer.
   a. Elonga8on, ASTM D 412: 300%
   b. Hardness, Shore A, ASTM C 920: 50
   c. Shear Strength, ASTM D 1002: 300 psi

4. Water Repellent - Seal-A-Pore HP: Transparent and colorless solu8on designed to dampproof above grade masonry surfaces as recommended and furnished by the membrane manufacturer.
   a. Density @77 degrees F 8.4 lb/gal min.
   b. Viscosity (Zahn #2 cup) Typical 14 sec.

5. Acrylic Dampproofing - Tuff-Coat: Elastomeric wall coa8ng that provides heavy body protec8on while bridging small hairline cracks and masonry imperfec8ons as recommended and furnished by the membrane manufacturer.
   a. Density @77 degrees F 12.25 lb/gal typical
   b. Viscosity, ASTM D 562: 95 KU

6. Butyl Tape: 100% solids, asbestos free and compressive tape designed to seal as recommended and furnished by the membrane manufacturer.

7. Non-Shrink Grout: GarRock all-weather fast sexng chemical ac8on concrete material to fill pitch pans.
   a. Flexural Strength, ASTM C 78: (modified) 7 days 1100psi
   b. High Strength, ASTM C 109: (modified) 24 days 8400lbs (3810kg)

8. Pitch Pocket Sealer - Seal-Tite: One-part, 100% solids, self-leveling, polyurethane sealant.

   a. Viscosity, ASTM D2196: 90,000 to 160,000 cps
   b. Skin Time, 70°F (21.1°C), 50% R.H.: Min. – 10 min; Max. – 40 min
   c. Elonga8on, 100 mil @ 70°F (21.1°C) ASTM D 412: 250%
   d. Tensile Strength, ASTM D 412: 200 psi at 100 mil

3.10. ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
   1. Owner: _____.
   2. Address: _____.
   3. Building Name/Type: _____.
   4. Address: _____.
   5. Area of Work: _____.
   6. Acceptance Date: _____.
   7. Warranty Period: **Three Years**.
   8. Expira8on Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defec8ve materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and condi8ons herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defec8ve work and as are necessary to maintain said work in a water8ght condi8on.

D. This Warranty is made subject to the following terms and condi8ons:
   1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
      a. lightning;
      b. peak gust wind speed exceeding **120 MPH**;
      c. fire;
      d. failure of roofing system substrate, including cracking, sePlement, excessive deflec8on, deteriora8on, and decomposi8on;
      e. faulty construc8on of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge condi8ons and penetra8ons of the work;
      f. vapor condensa8on on boPom of roofing; and
      g. ac8vity on roofing by others, including construc8on contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
   2. When work has been damaged by any of foregoing causes, Warranty shall be null and void un8l such damage has been repaired by Roofing Installer and un8l cost and expense thereof have been paid by Owner or by another responsible party so designated.
   3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequen8al damages to building or building contents resul8ng from leaks or faults or defects of work.
   4. During Warranty Period, if Owner allows altera8on of work by anyone other than Roofing Installer, including cuxng, patching, and maintenance in connec8on with penetra8ons, aPachment of other work, and posi8oning of anything on roof, this Warranty shall become null and void on date of said altera8ons, but only to the extent said altera8ons affect work covered by this Warranty. If Owner engages Roofing Installer to perform said altera8ons, Warranty shall not become null and void unless Roofing Installer, before star8ng said work, shall have no8fied Owner in wri8ng, showing reasonable cause for claim, that said altera8ons would likely damage or deteriorate work, thereby reasonably jus8fying a limita8on or termina8on of this Warranty.
   5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
   6. Owner shall promptly no8fy Roofing Installer of observed, known, or suspected leaks, defects, or deteriora8on and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deteriora8on.
   7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION

SECTION 09800

ELASTOMERIC ACRYLIC WALL COATING

PART 1 – GENERAL

1. SUMMARY

A. This specifica8on is for a one component, low solvent, emulsified poly-resin architectural wall coa8ng. It damp proofs and beau8fies all types of exterior and interior masonry surfaces such as concrete, brick work, stucco and exterior insula8ng finishing systems (EIFS).

2. RELATED SECTIONS

A. Drains, Vents, Ducts, Penetra8ons: Sec8on 07700

B. Cast-In-Place Concrete: Sec8on 03300

C. Repairs and cleaning of masonry surfaces: Sec8on 04500

D. Repairs to expansion joints and applica8on of joint sealants: Sec8on: 07900

3. SUBMITTALS

A. Product Data: Submit manufacturer's standard submiWal package including specifica8on, installa8on instruc8ons, and general informa8on for each waterproofing material.

B. Applicator Qualifica8ons: Submit a current qualified applicator cer8ficate from the specified waterproofing manufacturer.

4. QUALIFICATIONS

A. Primary elastomeric coa8ng materials shall be products from a single manufacturer. The primary manufacturer shall recommend any secondary materials. Manufacturer shall have a minimum of 10 years experience in the manufacturing of materials of this type.

B. Applicators shall have a minimum of 5 years experience in the applica8on of damp proofing materials of the type specified. Applicator shall be an authorized applicator from the specified damp proofing manufacturer.

C. Pre-bid Job Walk: Ten (10) working days prior to bid opening there is to be a mandatory pre-bid job walk. Anyone not aWending the pre bid job walk will not be allowed to bid the project. All products considered an equal to the specified product or any changes in the scope of work or installa8on or specifica8ons must be presented at the pre bid job walk. If a change in the specifica8on is accepted, it will be considered as an alternate and will be presented as a bid amendment issued five (5) working days prior to the bid opening. No other changes to the specifica8on or bid documents will be accepted.

D. Pre-Installa8on Conference: Just prior to commencement of the elastomeric coa8ng system, meet at the site with a representa8ve of the coa8ng manufacturer. The elastomeric coa8ng

contractor, the general contractor, the architect and other par8es affected by this sec8on. Review methods and procedures, substrate condi8ons, scheduling and safety.

5. DELIVERY, STORAGE AND HANDLING

A. Store all coa8ng materials in the original unopened containers between 50° - 80°F (10° - 26°C) un8l ready for use.

B. Follow the special handling or storage requirements of the manufacturer for cold weather, hot weather, etc.

C. Safety: Refer to all applicable data, including but not limited to, MSDS sheets, PDS sheets, product labels, and specific instruc8ons for specific personal protec8on requirements.

D. Ven8la8on: Provide adequate ven8la8on to prevent the accumula8on of hazardous fumes during applica8on.

E. Environmental requirements: Proceed with work of this sec8on only when exis8ng and forecasted weather condi8ons will permit the applica8on to be performed in accordance with the manufacturer's recommenda8ons.

6. WARRANTY

A. The contractor shall guarantee that all work performed will be free from defects in materials and workmanship. The contractor is to provide a 5 year labor/workmanship warranty. Upon no8ce of defect in wri8ng, the contractor within one year afer comple8on of work shall, at his own expense, make all necessary repairs or replacements of the defec8ve work in ques8on.

B. A 5-year, material warranty is available with this system provided it has been installed by a Garland Approved Applicator and is installed according to this specifica8on.

PART 2 – PRODUCTS

1. MANUFACTURERS

A. The design is based upon coa8ng systems engineered and manufactured by The Garland Company:

The Garland Company
3800 East 91st Street
Cleveland, Ohio 44105
Telephone: (559) 647-1196
Website: www.garlandco.com

B. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If no manufacturer and products are listed, the bid may be accepted only with the use of products specified.
1. Bidder will not be allowed to change materials afer the bid opening date.
2. If alternate products are included in the bid, the products must be submiWed a minimum of seven (7) days prior to the bid date for review and be equal to or exceed

the products specified. Suppor8ng technical data shall be submiWed to the Architect/ Owner for approval prior to acceptance.

3. In making a request for subs8tu8on, the Bidder/Roofing Contractor represents that it has:
   a. Personally inves8gated the proposed product or method, and determined that it is equal or superior in all respects to that specified.
   b. Will provide the same guarantee for subs8tu8on as for the product and method specified.
   c. Will coordinate installa8on of accepted subs8tu8on in work, making such changes as may be required for work to be completed in all respects.
   d. Will waive all claims for addi8onal cost related to subs8tu8on, which consequently become apparent.
   e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the subs8tu8on.
   f. Will reimburse the Owner for all redesign cost by the Architect for accommoda8on of the subs8tu8on.
4. Architect/ Owner reserves the right to be the final authority on the acceptance or rejec8on of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
5. Failure to submit subs8tu8on package, or any por8on thereof requested, will result in immediate disqualifica8on and considera8on for that par8cular contractors request for manufacturer subs8tu8on.

2. MATERIALS

A. Emulsified Acrylic Coa8ng: Tuff-Coat for damp proofing and beau8fying all types of exterior and interior masonry surfaces such as concrete, brick work, stucco and exterior insula8on finish systems (EFIS).

Tuff-Coat has the following physical proper8es:

Tensile Strength: 160 psi (ASTM D-2370)

Elonga8on: 585% (ASTM D-2370)

Water Vapor Permeability @ 10 mils: 20 Perms (ASTM D-1653)

Solids by Volume: 47.4%

B. where quick permanent repairs are desired. (Coa8ng will not adhere to Gar-Rock Compound).

C. Epoxy-based patching compound: Fill-Loc Crack Repair is a two-component, VOC compliant, 100% solids epoxy patching product designed to make repairs to small surface imperfec8ons prior to applying a thin coa8ng.

D. Polyester Tape: Dura-Walk Polyester Tape is a fusion bonded fabric polyester designed to be reinforcement fabric over cracks or joints.

E. Nontoxic Biodegradable Cleaner: B-Clean is a heavy duty chemical formula8on designed to clean a variety of masonry substrates including concrete, brick, stone, aggregate, and block surfaces.

F. Misc. Accessories: All items incorporated into this system shall be compa8ble with and approved by coa8ng manufacturer.

NOTE: Allow addi8onal material for rough or irregular surfaces and up to 10% for material loss during applica8on and differences in substrate porosity.

PART 3 – EXECUTION

1. EXAMINATION

A. Verify that substrate is ready to receive work; surface is clean, dry and free from projec8ons and depressions, loose scale, sand, curing compounds, grease, oil, asphalt, loose coa8ngs need removed and other foreign deposits.

B. Do not begin work un8l concrete substrate has cured 28 days, minimum. Water cured treatment of concrete is preferred. Resin or water based curing compound should not be used. Non-compa8ble curing agents must be removed prior to applica8on.

C. The work shall not be started when temperature is under 50°F (10°C) or when precipita8on is imminent.

D. Verify that all other work involved with this area, done under other sec8ons, has been completed and accepted by the architect and general contractor prior to star8ng the waterproofing applica8on.

E. Concrete surface pH level must not be higher than 11 prior to coa8ng.

F. Damaged areas of concrete, mortar joints or EFIS should be repaired prior to coa8ng.

2. PREPARATION

A. Clean substrate to remove any and all surface contaminants. Surfaces to be coated must be cleaned to a sound surface. Refer to your Garland representa8ve for specific prepara8on techniques.

B. Mask-off all adjoining areas that are not to receive the elastomeric wall coa8ng.

C. Provide a suitable worksta8on to mix the coa8ng materials.

D. Concrete: Special aWen8on should be given to smoothness of surface and freedom from contaminants, including paint or previous coa8ngs. Consult your Garland representa8ve for alternate procedures for coa8ng over exis8ng paint. Such procedures are highly dependent on specific job condi8ons. Curing compounds, if used, shall be removed either by blast media or etching. In the event specifica8ons are not met, the following correc8ve procedures are recommended.

E. Cleaning Methods:

1. Nontoxic Biodegradable Cleaner: Nontoxic Biodegradable Concrete & Masonry Cleaner: Scrape, sand, or wire brush all hard or glossy surfaces and residual contaminants to assure effec8ve cleaning. Use the most abrasive methods necessary to remove all contaminants that will inhibit the cleaning solu8on from properly satura8ng the substrate.
   Rinse the substrate to be treated thoroughly with clean water to remove excess debris and dampen the surface. Beginning at the top of the substrate working down to the boWom, generously apply the B-Clean solu8on directly to the affected areas using overlapping paWerns. Allow the solu8on to soak into surface for 20-30 minutes. Do NOT allow surface to dry. Reapply a light mist of the solu8on intermiWently to ensure the surface remains damp. Depending on the degree of contamina8on and exposure a s8ff bristle brush may be required once the solu8on reacts. Next, using overlapping paWerns rinse the surface from top to boWom with water. Addi8onal applica8ons may be required dependent upon the severity of the contaminant, using the same approach as
   above. Allow the substrate sufficient 8me to dry.

2. Solvent & Acid Cleaners: Wipe up grease or oil with a solvent and absorbent material. Disposal of this material should be in accordance with local laws and codes. Wash with solvent-alkaline cleaners diluted one part cleaner and five parts water. Rinse thoroughly with clean water. If evidence of oil film remains as indicated by water "beading," etch surface with 10% solu8on muria8c acid. Agitate surface with s8ff bristle broom; then rinse with clean water.
   Remove curing compounds by etching with 10% muria8c acid followed by clean water rinse. Allow to thoroughly dry before applying coa8ng. Grinding or sandblas8ng can remove heavy deposits of contaminants. Any residual traces of asphalt stains must be sealed with an epoxy primer to avoid staining of light colored top coats. Apply primer in two coats and allow a minimum of 48 hours cure 8me.

F. Cracks less than 1/16" (1.5 mm) wide shall be sealed afer cleaning has been performed using an elastomeric hybrid sealant. Crack shall be cleared of all loose debris, dirt and widened slightly at the surface to accommodate elastomeric hybrid sealant. Apply elastomeric hybrid sealant by knifing into crack or gunning over crack surface, followed by tooling to match adjacent surface profile, pressing the sealant into the crack cavity to fill completely.

G. Cracks 1/16" (1.5 mm) to 1/8" (3.0 mm) wide shall be routed to a ¼" to ½" groove, backer rod shall be installed, groove shall be caulked with elastomeric hybrid sealant. Fill grooves flush with adjacent surfaces.

H. Allow sufficient curing 8me for all sealants to dry-through before proceeding with elastomeric coa8ng applica8on – at least 1 hour not exceeding 3 hours prior to stripe coa8ng with approved elastomeric coa8ng.

I. All sealed expansion joints or sealant repairs must be stripe coated within 1-3 hours with a half inch nap roller or approved brush extending the coa8ng a minimum of 2 inches past the perimeter of the joints sealant or sealant repair ensuring a good protec8ve base of the elastomeric coa8ng is present.

I. Defec8ve mortar or stucco areas should be repaired using a cement-based patching compound.

3. INSTALLATION

A. Technical Advice: The installa8on of this elastomeric coa8ng system shall be accomplished in the presence of, or with the advice of the manufacturer's technical representa8ve.

B. Joint Treatment:

1. Non-moving Cracks: Stripe coats all non-moving cracks. Fill the crack first with a bead of Tuff-Stuff MS sealant and strike flush. Afer filling, apply Tuff-Coat for a distance of 2" on each side of the crack 16-20 mils thick and allow curing. When applying the elastomeric coa8ng system on the wall, go over the stripe coat to achieve a total thickness of 48-52 mils.
2. Moving Cracks: Remove all dirt and loose chips of concrete from the crack. Fill with Tuff-Stuff MS and strike flush with the wall surface. Center 4" wide piece of polyester tape over the crack and adhere it firmly and thoroughly to the wall. Stripe coat 16-20 mils of Tuff-Coat over the polyester tape and for 2" on each side of the crack. When applying the elastomeric coa8ng system on the wall, go over the stripe coat to achieve a total thickness of 48-52 mils.
3. Control Joints: Place a backer material (solvent expanded plas8c such as polyethylene or polypropylene) in joint. The backer material should be oversized so it can be compressed into the joint and flush to the wall surface. Apply a bead of Tuff-Stuff MS sealant over the backer rod sealing the joint and strike flush with the wall surface.

C. Elastomeric Coa8ng: Apply Tuff-Coat to secure a total minimum coverage of 2 gallons per 100 square feet (total wet film thickness 32 mils). Product shall be applied by phenolic core roller or airless spray at a rate of 100-200 sq. f. per gallon depending on the porosity and roughness of the surface with a minimum 2 coat process.

3.4. FIELD QUALITY CONTROL

A. The contractor for work under this sec8on shall maintain a quality control program specifically to verify compliance with this specifica8on. A daily log shall be kept to record ac8ons in the field.

B. Inspec8ons: A minimum of three (Substrate, Applica8on and Final) inspec8ons by an approved manufacturer's representa8ve, will be required on all projects requiring a warranty.

END OF SECTION