County of Nevada
Facilities Management Division

Project Specifications

Nevada County Roof Restoration and Replacement Project for Various Locations 2020

Grass Valley Library
Bost House
Nevada City Courthouse
Madelyn Helling Library
Truckee Government Center

Bids Due: 2:30PM Thursday May 7, 2020

Pre-Bid Site Visit
9:00 AM, Wednesday April 22, 2020
beginning at Grass Valley Library

SPECIFICATION
ROOF RESTORATION
PYRAMIC PLUS LO
GRASS VALLEY LIBRARY
207 Mill St, Grass Valley, CA

INSTALLATION GUIDE SPECIFICATION 07500

PART I − GENERAL

1.1 SUMMARY

A. Provide labor, equipment, supervision, and materials to install roller-applied or spray- applied acrylic/urethane coating system as outlined in this specification to create a seamless coating system.

B. The manufacturer's application instructions for each product used are to be considered part of these specifications, and should be followed at all times.

1.2 SUBMITTALS

A. Submit product data sheets and literature verifying fire ratings and physical properties of materials.

B. Submit material safety data sheets.

1.3 QUALITY ASSURANCE

A. Supplier Qualifications: The Pyramic Plus LO® Coating System, as supplied by The Garland Co., is approved for use on the project.

B. Applicator Qualifications: The applicator shall be approved by The Garland Company to apply the system. Manufacturer's written verification of applicator approval is required.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600. Substitution request must be submitted seven days prior to bid date and time.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Containers and Packaging: Deliver materials in original sealed containers, clearly marked with: manufacturer’s logo; full product name; and lot number(s).

B. Storage: Store materials between 50ºF and 100ºF with careful handling to prevent damage to products. If conditions exceed these ranges, special consideration in storage must be taken. Do not store at high temperatures in direct sunlight.

C. Protection: Protect all materials from freezing and other damage during transit, handling, storage, and installation.

1.5 PROJECT CONDITIONS

A. For application details, consult the local Garland Company representative for recommendations on the proper system to use on project substrate and at expected substrate and ambient temperatures.

B. Do not proceed with application of coating materials when surface or ambient temperature is less than 50ºF.

C. Do not apply materials unless surface to receive the acrylic coating is clean and dry.

D. Install all material in strict accordance with all published safety, weather, or applicable regulations of the manufacturer and/or local, state, and/or federal agencies which have jurisdiction.

E. This restoration project will begin after August 15, 2020 so the Children's Summer reading program will be over.

1.6 DETAIL WORK

A. Three course all curb corners with KEE Lock Mastic and Garmesh.
B. Cut out all blisters and three course with KEE Lock Mastic and Garmesh.
C. Three course loose edges with KEE Lock Mastic and Garmesh.
D. Seal all pipes, conduits, etc. with Tuff Stuff.
E. Apply Unibond and Pyramic Plus LO to north roof on street side of building.

II. PRODUCTS

2.0 EQUIPMENT

A. For recommended spray equipment guidelines, please refer to The Garland Companies Spray Application Guide or consult the spray equipment manufacturer directly.

2.1 SPRAY-APPLIED ACRYLIC/URETHANE COATING SYSTEM

A. The coating shall be roller or spray applied Pyramic acrylic/urethane coating system, manufactured by The Garland Company.

B. Physical Properties of Cured Coating System:

1. The coating system shall contain no plasticizers.
2. The coating system shall contain no migrating fire retardants.
3. The coating system shall have a Class A fire rating when tested according to the procedures outlined in ASTM E-108.
4. The protective coating system shall also meet the following physical property requirements:

Property	ASTM Method	Results
Tensile Strength, psi (Max @ 73ºF)	D1475	Minimum 250
% Elongation @ Break (73ºF)	D2370	Minimum 250
Wet adhesion to Specified Substrate	D6083	Minimum 3.0 pli
Permeance, perms	D6083	Maximum 20
Volume Solids % Weight Solids %	D6083	> 50 > 65

2.2 RELATED MATERIALS

A. Flashing, adhesives, thinners, elastomeric caulking compounds, primers, and similar materials shall be approved by the manufacturer of the coating. All materials used shall be applied in accordance with its manufacturer's recommendations.

III EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins and product guide specification instructions.

3.2 EXAMINATION

A. Inspect surfaces that will receive acrylic coating system to make sure they are clean, smooth, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.

B. Verify that all roof penetrations, mechanical equipment, cants, edge metal, and other on-roof items are in place and secure.

C. Verify that all critical areas around the immediate vicinity of the spray area are suitably protected.

D. Verify all roof drains are clean and in working order.

E. Verify that all air conditioning and air intake vents are suitably protected or closed.

3.03 PREPARATION

A. Prior to coating application, all existing non-embedded granule surfacing material shall be removed by means of a stiff bristle street broom, powered mechanical sweeper, or vacuuming. All loose dirt and dust remaining after granule removal must be broomed and/or vacuumed from the roof. All blisters, ridges and other imperfections must be secured so that the surface will be clean and dry and a secure base for coating application.

B. Existing low areas where water ponds and areas with obviously poor drainage to roof scuppers, drains, or roof edges should be corrected by filling and/or tapering insulation or by adding drains. To prevent the ponding of water, the entire system must be well sloped into drains. Install additional drains as necessary.

C. Priming may be required on some substrates. Discuss with a Garland Company Technical Consultant.

D. Other types of Surfaces: Preparation of surfaces and use of materials may vary substantially with different types of new or existing roofs. Contact the local Garland Representative Justin Holliman 530-965-0884 for specific recommendations over other types of surfaces.

3.04 APPLICATION

A. Pyramic Plus LO Acrylic/Urethane Coating System:

1. Apply Garla Block primer at a rate of ½ gallon per 100 sq ft.

2. The first coat of the Pyramic Plus LO Base Coat shall be applied 24-48 hours after the surface is cleaned. In no case shall the coating be applied over a dirty surface. The first coat must be back rolled to achieve proper adhesion.

3. The Pyramic coating system shall be sprayed or roller applied in a cross hatch technique without causing runs or puddles.

4. The Pyramic coating system shall be evenly applied in 2 separate coats to achieve a **minimum system of 22-32 mils dry film thickness**. The base coat shall be applied at a rate of 2 gallons per 100 sq ft. The top coat shall be applied at a rate of 2 gallons per 100 sq ft. Allow thorough dry time between coats. **Base and top coats must be back rolled to insure proper adhesion and coverage.**

5. These minimum recommendations for material usage are for ideal conditions. The number of gallons per 100 square feet may need to increase due to uneven application, rough surface texture, wind conditions while spraying, or other variables.

6. No coating shall be applied if weather will not allow it to dry prior to exposure to precipitation or freezing temperatures.

7. Safety Stripe: Install Garland approved product for a 4” wide yellow safety stripe painted onto the new surface 6’ back from any flat roofs that have no safety barrier.

3.5 FIELD QUALITY REQUIREMENTS

A. Manufacturer’s Field Services: Inspections by an employee of the coating manufacturer shall be made a minimum of 2 days per week during the installation to verify the proper installation of the system. Any areas that do not meet the minimum standards for application as specified herein shall be corrected at the contractor's expense. Manufacturer's inspection or verification shall not constitute acceptance of responsibility for any improper application of material. A written/photo inspection report from the manufacturer must be provided to the owner, architect and general contractor on a weekly basis.

3.6 CLEANING

A. Surfaces not intended to receive elastomeric coating materials shall be protected during the application of the system. Should this protection not be effective, or not be provided, the respective surfaces shall be restored to their proper conditions by cleaning, repairing or replacing. All debris from completion of work shall be completely removed from the project site. The site shall be left in a broom-clean condition.

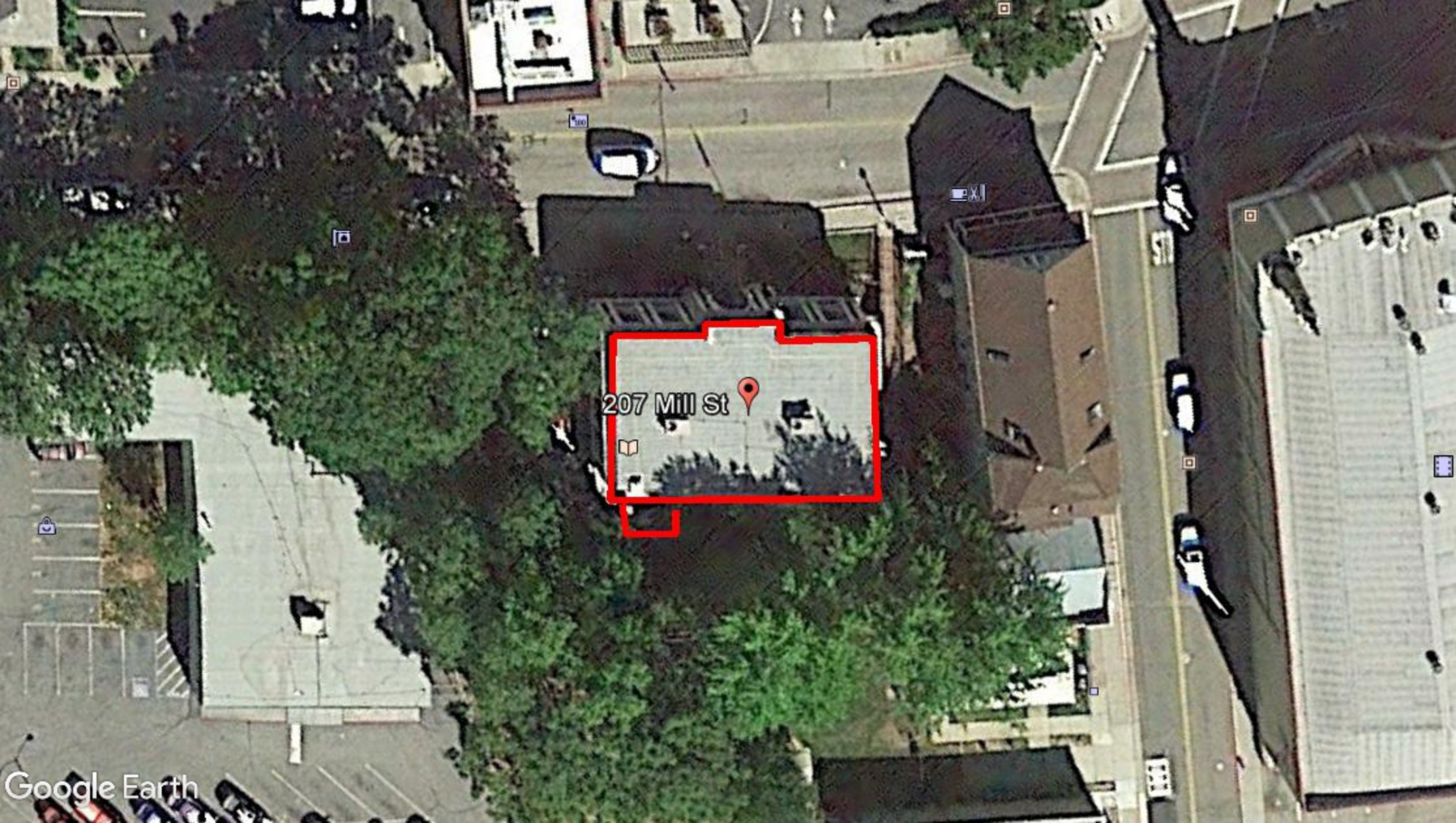
IV. MATERIALS

4.1

A. The following materials listed in these recommendations are available from The Garland Company:

1. Pyramic Plus LO®, high performance acrylic/urethane roof base coating.

END OF SECTION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SPECIFICATION
STANDING SEAM METAL ROOFING
BOST HOUSE
145 Bost Ave, Nevada City CA

SECTION 07410
METAL ROOF PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Standing seam metal roofing system.

1.2 RELATED SECTIONS

A. Section 06150 - Wood Decking.

B. Section 07620 - Sheet Metal Flashing and Trim.

C. Section 07714 - Gutters and Downspouts

1.3 REFERENCES

A. SMACNA - Architectural Sheet Metal Manual.

B. National Coil Coating Association (NCCA)

C. NRCA - The NRCA Roofing and Waterproofing Manual.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Standing Seam Roofing System: Garland R-Mer Loc or approved equal.
   1. Thermal Expansion and Contraction:
      a. Completed metal roofing and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.
      b. Design temperature differential shall be not less than 200 degrees F.
      c. Interface between panel and clip shall provide for unlimited thermal movement in each direction along the longitudinal direction.
      d. Location of metal roofing rigid connector shall be at roof ridge unless otherwise approved by the Architect. Metal ridge connector may require design as per job conditions by specified manufacturer.
   2. Uniform wind load capacity:
      a. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria.
         1) Design Code: ASCE 7, Method 2 for Components and Cladding.
         2) Safety Factor: 1.67 after any load reduction or material stress increase.
         3) Category _B__ Building with an Importance Factor of ___.
         4) Wind Speed: __120__ mph.
         5) Ultimate Pullout Value: ___ pounds per each of the two fasteners holding the panel anchor to the roof decking or framing system.
         6) Exposure Category: ___.
         7) Design Roof Height: _15__ feet.
         8) Minimum Building Width: 30 feet.
         9) Roof Pitch: _12_ inches per foot.

10) Roof Area Design Uplift Pressure:
a) Zone 1 - Field of roof ___ psf.
b) Zone 2 - Eaves, ridges, hips, and rakes ___ psf.
c) Zone 3 - Corners ___ psf.

b. ASTM E 1592: Capacity shall be determined using pleated airbag method in accordance with ASTM E 1592, testing of sheet metal roof panels. Allowable safe working loads shall be determined by dividing the ultimate test load by the safety factor specified above.

c. Underwriters' Laboratories, Inc., (UL), wind uplift resistance classification: Roof assembly shall be classified as Class 1-90, as defined by UL 580

3. Uniform Positive Load Capacity.
   a. Installed roof system shall be capable of resisting the following positive uniform roof loads: Roof Live Load of 20 psf; Roof Snow Load of ___ psf.
   b. Dead Load: Loading of the roof structure, due to tear off of existing, and/or installation of new roofing materials shall not exceed the present loading due to weight of the existing roofing system.
   c. Installed roof system shall carry positive uniform design loads with a maximum system deflection of L/180 as measured at the rib (web) of the panel.
4. Underwriters' Laboratories, Inc., (UL):
   a. Underwriters' Laboratories, Inc., (UL) fire resistance P ratings for roof assemblies: If applicable, panel system shall be approved for use in an appropriate Construction Assembly, as defined by UL 263.
   b. Underwriters' Laboratories, Inc., (UL) Class A fire rating per UL 790.
5. ASTM E 1680: Static pressure air infiltration (roof panels):
   a. Pressure Leakage Rate
      1) 1.57 PSF 0.0054 cfm/sq.ft.
      2) 6.24 PSF 0.0054 cfm/sq.ft.
      3) 20.0 PSF 0.0027 cfm/sq.ft.
6. ASTM E 1646: Static pressure water infiltration (roof panels):
   a. Pressure Result:
      1) 5 Gal/Hr per S.F. and Static No Leakage
      2) Pressure of 20.0 Psf. for 15 minutes
7. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within the range of test data. Extrapolation for conditions outside test range is not acceptable.
8. Metal roofing Substitution request must be submitted seven days prior to bid date and time.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Submit product data, test reports, and certifications in accordance with quality assurance and performance requirements specified herein.

C. Design Loads: Submit manufacturer's minimum design load calculations according to ASCE 7, Method 2 for Components and Cladding. In no case shall the design loads be taken to be less than those specified herein.

D. Dead Load Evaluation: Provide documentation from a licensed structural engineer of a structural evaluation of the roof structure and it's suitability for the new imposed roofing loads.

E. Shop Drawings: Prepared specifically for this project; showing dimensions of metal roofing and accessories, fastening details and connections and interface with other products.

F. Selection Samples: For each finish product specified, two complete sets of samples

representing manufacturer's full range of available colors and textures.

G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and textures.

H. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

I. Closeout Submittals:
   1. Provide manufacturer's maintenance instructions that include recommendations for periodic checking and maintenance of installed roof system.
   2. Provide executed copy of manufacturer's warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001 approval.

B. Installer Qualifications: Certified and approved installer of the sheet metal roofing manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

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

B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representative.

C. Objectives include:
   1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
   2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
   3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
   4. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
   5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
   6. Review required inspection, testing, certifying procedures.
   7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
   8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
   1. Store materials above ground, on skids.
   2. Protect material with waterproof covering and allow sufficient ventilation to prevent condensation buildup or moisture entrapment on the materials.

1.9 PROJECT CONDITIONS

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

1.10 WARRANTY

A. Warranty:
1. 30 year limited watertight warranty for roofs over a 3:12 slope.
2. Provide installers 2 year warranty covering roofing system installation and water-tightness.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Local Representative Justin Holliman 530-965-0884 jholliman@garlandind.com

B. Or approved equal. Substitution request must be submitted seven days prior to bid date and time.

2.2 STANDING SEAM METAL ROOFING

A. R-Mer Loc: Panel with 1-3/4 inch high standing seam with 3/8-inch high clearance between panel and substrate or approved equal. Substitution request must be submitted seven days prior to bid date and time.

B. Width of Panel:
a. 18 inches.
2. Seam Height: 1-3/4 inch.
3. Slope: Open Purlins, Slopes down to 3:12.
4. Slope: Solid Substrate, no framing components, Slopes down to 1-1/2 :12.
5. Panel Clips: Minimum 18 gauge, galvanized steel or stainless steel. Two-piece clips are unacceptable.
6. Passes:
a. ASTM E 1592
b. ASTM E 1680
c. ASTM E 1646
d. Class A Fire Rating, UL-790.
e. UL (Class 90) 580.
7. Panel material:
a. Galvanized steel 24 gauge, G90, smooth as per ASTM A 653.
8. Flashing and flat stock material: Fabricate in profiles indicated on Drawings of same material, thickness, and finish as roof system, unless indicated otherwise.
9. Coated Finish:
a. Exposed surfaces for coated panels:
b. Unexposed surfaces for coated panels shall be baked-on polyester coating with .20 to .30 dry film thickness (TDF).
10. Accessory Components:
a. Gable anchor clips shall be minimum 18 gauge, galvanized steel or stainless steel.
b. Fasteners:
1) Concealed fasteners: Corrosion resistant steel fasteners (zinc plated or equal) designed to meet structural loading requirements. Provide #14 as

minimum fastener size.

2) Exposed fasteners: Series 410 stainless steel fasteners or one-eighth (1/8) inch diameter stainless steel waterproof rivets. All exposed fasteners shall be factory painted to match the color of the standing seam panels.

c. Closures: Factory precut closed cell foam meeting ASTM D 1056 or ASTM D 3575, with metal trim matching panels when used at hip, ridge, jamb, and rake.

d. Provide all miscellaneous accessories for complete installation.

2.3 STANDING SEAM METAL ROOFING ACCESSORIES

A. Underlayment:

1. 40 mil minimum high temp self adhesive membrane Rmer Seal by The Garland Company, Inc., installed in accordance with manufacturer's recommendations.
2. Or approved equal. Substitution request must be submitted seven days prior to bid date and time.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces to receive metal roofing. Notify the Owner in writing of any defective conditions encountered. Starting of work shall constitute acceptance of such conditions.

B. Structural Deck Substrate:

1. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves, or projections, and properly sloped.
2. Verify deck is dry and joints are solidly supported and fastened.
3. Verify wood nailers are installed and correctly located. Do not use pressure-treated wood containing salt-based preservatives or materials corrosive to steel.

C. Structural Framing Substrate:

1. Verify primary and secondary framing members are installed and fastened, properly aligned and sloped.
2. Verify damaged shop coatings are repaired with touch up paint.

D. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets are in place, and nailing strips located.

E. Correct defective conditions before beginning work.

3.2 INSTALLATION

A. Install in conformance with the NRCA Roofing and Waterproofing Manual and Manufacturers installation requirements.

B. Form panel shape as indicated on Drawings, accurate in size, square, and free from distortion or defects.

C. Remove existing chimneys.

D. East chimney will be removed and terminated below the eve of the roof. A sheet metal cap will be installed on the top of the chimney.

E. West chimney will be removed to below roof deck.

F. Install new framing, plywood and fascia where chimneys were removed.

G. Install new gutter and downspout system on east side of building. Match existing mfg- leaf guard.

H. Install underlayment and eave protection sheet underlayment as recommended by the Manufacturer.

I. Install all panels continuous from ridge to eve. Transverse seams are not permitted.

J. Panel lengths that exceed maximum shipping lengths shall be field rolled on equipment owned by the panel manufacturer. Seam sealant must be factory applied.

K. Exposed fasteners, screws and/or roof mastic are unacceptable and will be rejected. System configuration only allows for exposed fasteners at panel overlap, if required, and at trim details in accordance with the Manufacturer's requirements.

L. Where not otherwise indicated conform to SMACNA details including flashings and trim.

M. Install sealants where indicated to clean dry surfaces only without skips or voids.

N. Install Tyvek wrap over existing siding after rake to wall flashings are installed on the 2 dormers.

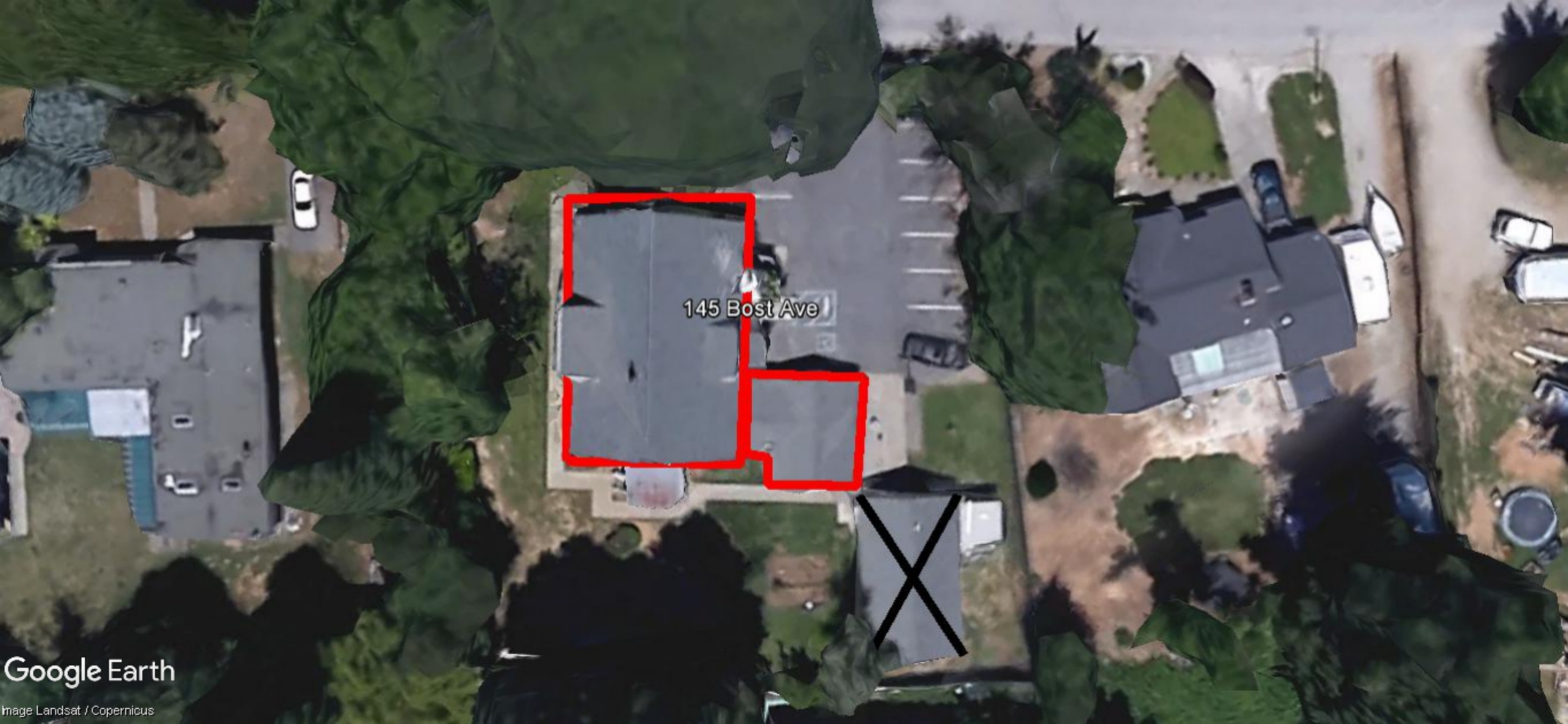
O. Install new horizontal siding on the 2 dormers per manufactures shop drawings. Hardiplank Corner trim and Hardiplank Colonial smooth lap siding. Prime and apply 2 coats of high quality Paint on new corner trim and siding to match existing color.

3.3 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION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SPECIFICATION
ROOF RESTORATION
LIQUITEC
NEVADA CITY COURTHOUSE
201 Church St, Nevada City, CA

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roof Restoration System

1.2 RELATED SECTIONS

A. Section 07620 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.

B. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

A. SMACNA Architectural Sheet Metal Manual.

B. ANSI/SPRI ES-1 - Testing and Certification Listing of Shop Fabricated Edge Metal

C. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

A. Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Fascia Edges: Inspect and make repairs to membrane
   3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, coping cap, etc. Install Unibond ST to coping laps and apply LiquiTec.
   5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with Unibond and LiquiTec.
   6. Remove two skylights on courthouse roof. Add supports and sheet metal cap.
   7. Replace existing skylights on Annex roof with similar type.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection 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 Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.

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

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

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

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Owner, submit Manufacturer's written 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 installation and associated work.

B. Require attendance of Owner, roofing system manufacturer's representative and roofing foreman.

C. Objectives include:
   1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
   2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
   3. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
   4. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
   5. Review required inspection, testing, certifying procedures.
   6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
   7. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

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

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

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

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

E. Storage temperatures should be between 60°F to 80°F (15.6° to 26.7°C) and not exceed 110°F (43.3°C). Indoor ventilated storage is recommended Ensure jobsite storage is in a shaded and ventilated area. Do not store in direct sunlight. Keep materials away from open flame or welding sparks.

1.9 PROJECT CONDITIONS

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

B. Weather Condition Limitations: Do not apply products during inclement weather or when precipitation is expected.

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

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

E. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

F. Take precautions to ensure that materials do not freeze.

G. Minimum temperature for application is 50°F (10°C) and rising.

1.10 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed warranty.
   1. Warranty Period:
      a. 10 years.

A. 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. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Local area representative Justin Holliman 530-965-0884 jholliman@garlandind.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01600. Substitution request must be submitted seven days prior to bid date and time.

2.2 ROOF RESTORATION SYSTEM FOR EXISTING ROOFS

A. LiquiTec System:
1. Base Coating: LiquiTec
2. Top Coating: LiquiTec
3. Flashing: Repair or replace as needed. LiquiTec.
4. Reinforcement: Uni-Bond ST self-adhered tape on all seams.

2.3 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Liquid Flashing – Coating: LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

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

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

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

B. Verify that existing conditions meet the following requirements:
1. Existing roofing is either fully adhered or that the membranes mechanical fasteners are secured and functional.
2. Application of roofing materials over a brittle roof membrane is not recommended.

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

D. Repair existing roof roofing as necessary to provide a sound substrate for the fluid-applied membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

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

F. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution 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 solution. Allow roof to dry thoroughly before continuing.

3.3 INSTALLATION

A. General Installation Requirements:
   1. Install in accordance with manufacturer's instructions.
   2. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
   3. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.

B. Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Fascia Edges: Inspect and make repairs to existing roofing.
   3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
   5. Roof Repairs: Repair blisters, stressed or cracked membrane, wrinkles and tenting.
   6. Conduit Support Blocks: Replace all conduit support blocks with new Mfg- Bline Dura Block and Mfg- Miro 1.5 blocks for smaller blocks or equal.
   7. Abandoned HVAC ducting: Remove and dispose of any abandoned HVAC units or ducting labeled for disposal.
   8. Drain Grates: Replace all roof top dome drain grates with new Mfg- Zurn pre-painted or equal. Do not replace the existing anchor plates. Attach new dome drain grates with Garland approved caulking.
   9. Safety Stripe: Install Garland approved product for a 4” wide yellow safety stripe painted onto the new surface 6’ back from any flat roofs that have no safety barrier.
   10. Coating Mixing Procedure:
      a. Mix Part A liquid for one minute using an electric heavy duty power drill and Jiffy mixer blade.
      b. Slowly pour contents of Part B jug, located inside the Part A pail, into the Part A container and mix the two components together for two minutes moving the Jiffy blade from top to bottom and along the sides to ensure the product is thoroughly mixed.
      c. Always mix entire kit contents together as packaged. Do not break down into smaller quantities.

   11. Field Details:
      a. Application of LiquiTec
         1) Verify that the surface to be coated is properly prepared.
         2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
   12. Application of Base Coat
      a. Apply a base coating of LiquiTec in a uniform manner at minimum application rate of 1.5 gal. /100 sq. ft. over the entire roof surface, including all flashings. Use a ¼” notched squeegee to spread coating and roller apply for uniform minimum coverage. Allow to cure thoroughly, but no more than 72 hours.
   13. Application of Top Coat
      a. Apply a top coating of LiquiTec Base or LiquiTec in a perpendicular direction over the base coat at 1.5 gal./100 sq. ft.

3.4 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

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

3.5 PROTECTION

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

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

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

D. In addition 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 permitted over new roofing.

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of two days per week.

B. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Contractor, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.

B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.

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 defective work found at time above inspection as required to a produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

E. Advise architect upon completion of corrections.

F. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

A. Base Coating:
   1. LiquiTec Base: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
      a. Elongation, ASTM D 412: 433%

b. Tensile Strength, ASTM D 412: 2300 psi
c. Tear Resistance, ASTM D 624: 449 lbs./in
d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
e. Hardness, ASTM D2240 (Shore A): 80
f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
g. Static Puncture Resistance (Fully Reinforced System): ASTM D5602, 20 kg
h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D4073, 274 lbf
i. Tensile Load Strain (Fully Reinforced System): ASTM D4073, 150 lbf/in.
j. Toughness: 193 ft.-lbf/ft²
k. Dry Film Thickness (Fully Reinforced System), 80-88 mils
l. Lap Shear Strength (MB Seam with coating): ASTM D7379, 231 lbf/in.
m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
n. Flash Point: ASTM D 93, 110°F min. (43°C)
o. VOC: 0 g/l
p. Microbial Resistance: ASTM G21, No Microbial Growth

2. LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
a. Elongation, ASTM D 412: 433%
b. Tensile Strength, ASTM D 412: 2300 psi
c. Tear Resistance, ASTM D 624: 449 lbs./in
d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
e. Hardness, ASTM D2240 (Shore A): 80
f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
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i. Tensile Load Strain (Fully Reinforced System): ASTM D4073,150 lbf/in.
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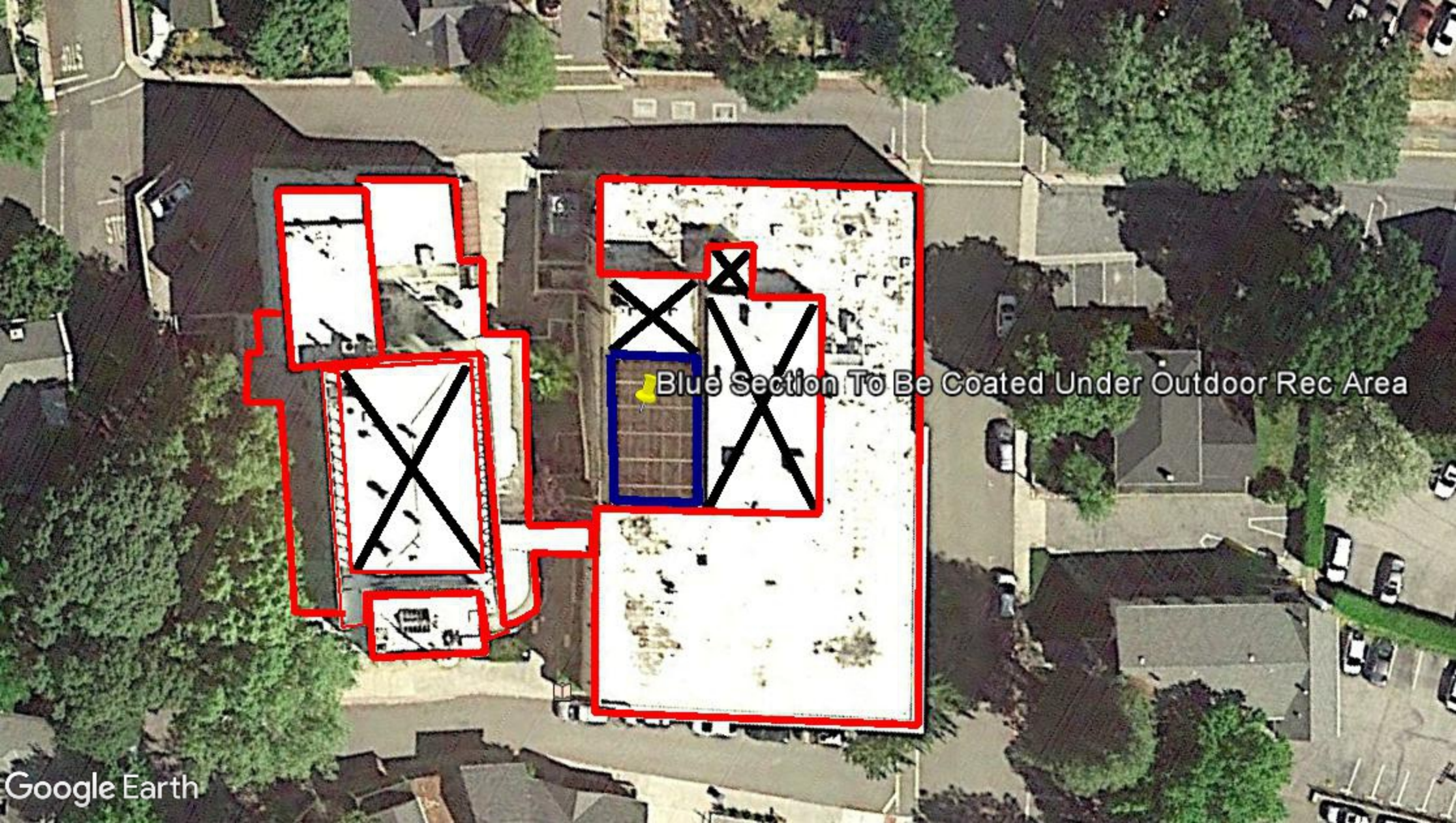
k. Dry Film Thickness (Fully Reinforced System), 80-88 mils
l. Lap Shear Strength (MB Seam with coating): ASTM D7379, 231 lbf/in.
m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
n. Flash Point: ASTM D 93, 110°F min. (43°C)
o. VOC: 0 g/l
p. Microbial Resistance: ASTM G21, No Microbial Growth
q. Initial Reflectance: 0.84
r. Initial Emittance: 0.88
s. Initial SRI: 105

B. Reinforcement
1. UniBond ST: Fatigue resistant, polyester-faced adhesive tape.

a. Initial Reflectance: 0.84
b. Initial Emittance: 0.88
c. Initial SRI: 105

END OF SECTION


Blue Section To Be Coated Under Outdoor Rec Area
Google Earth

SPECIFICATION
ROOF RESTORATION
PYRAMIC PLUS LO
NEVADA CITY COURTHOUSE
201 Church St, Nevada City, CA

INSTALLATION GUIDE SPECIFICATION 07500

PART I − GENERAL

1.1 SUMMARY

A. Provide labor, equipment, supervision, and materials to install roller-applied or spray- applied acrylic/urethane coating system as outlined in this specification to create a seamless coating system.

B. The manufacturer's application instructions for each product used are to be considered part of these specifications, and should be followed at all times.

1.2 SUBMITTALS

A. Submit product data sheets and literature verifying fire ratings and physical properties of materials.

B. Submit material safety data sheets.

1.3 QUALITY ASSURANCE

A. Supplier Qualifications: The Pyramic Plus LO® Coating System, as supplied by The Garland Co., is approved for use on the project.

B. Applicator Qualifications: The applicator shall be approved by The Garland Company to apply the system. Manufacturer's written verification of applicator approval is required.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600. Substitution request must be submitted seven days prior to bid date and time.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Containers and Packaging: Deliver materials in original sealed containers, clearly marked with: manufacturer’s logo; full product name; and lot number(s).

B. Storage: Store materials between 50ºF and 100ºF with careful handling to prevent damage to products. If conditions exceed these ranges, special consideration in storage must be taken. Do not store at high temperatures in direct sunlight.

C. Protection: Protect all materials from freezing and other damage during transit, handling, storage, and installation.

1.5 PROJECT CONDITIONS

A. For application details, consult the local Garland Company representative for recommendations on the proper system to use on project substrate and at expected substrate and ambient temperatures.

B. Do not proceed with application of coating materials when surface or ambient temperature is less than 50ºF.

C. Do not apply materials unless surface to receive the acrylic coating is clean and dry.

D. Install all material in strict accordance with all published safety, weather, or applicable regulations of the manufacturer and/or local, state, and/or federal agencies which have jurisdiction.

1.6 DETAIL WORK

A. Three course all curb corners with KEE Lock Mastic and Garmesh.
B. Cut out all blisters and three course with KEE Lock Mastic and Garmesh.
C. Three course loose edges with KEE Lock Mastic and Garmesh.
D. Seal all pipes, conduits, etc. with Tuff Stuff.
E. Rooftop HVAC Ducting: Clean and prime rust with Garland Rust Go and apply 2 coats of Garland Pyramic Plus LO to exposed HVAC ducting.
F. Exposed sheet metal: Clean and prime any rust with Garland Rust Go and apply 2 coats of Garland Pyramic Plus LO to exposed sheet metal.
G. Top of Mechanical room: Use mechanical power wire brush to clean rust areas. Clean up. Apply Mfg- Garland Rust- Go to any rust. Continue with Pyramic Plus LO installation process as noted below.

II. PRODUCTS

2.0 EQUIPMENT

A. For recommended spray equipment guidelines, please refer to The Garland Companies Spray Application Guide or consult the spray equipment manufacturer directly.

2.1 SPRAY-APPLIED ACRYLIC/URETHANE COATING SYSTEM

A. The coating shall be roller or spray applied Pyramic acrylic/urethane coating system, manufactured by The Garland Company. Any use of spray equipment will have to be done in “No” wind conditions.

B. Physical Properties of Cured Coating System:

1. The coating system shall contain no plasticizers.
2. The coating system shall contain no migrating fire retardants.
3. The coating system shall have a Class A fire rating when tested according to the procedures outlined in ASTM E-108.
4. The protective coating system shall also meet the following physical property requirements:

Property	ASTM Method	Results
Tensile Strength, psi (Max @ 73ºF)	D1475	Minimum 250
% Elongation @ Break (73ºF)	D2370	Minimum 250
Wet adhesion to Specified Substrate	D6083	Minimum 3.0 pli
Permeance, perms	D6083	Maximum 20
Volume Solids % Weight Solids %	D6083	> 50 > 65

2.2 RELATED MATERIALS

A. Flashing, adhesives, thinners, elastomeric caulking compounds, primers, and similar materials shall be approved by the manufacturer of the coating. All materials used shall be applied in accordance with its manufacturer's recommendations.

III EXECUTION

3.1 MANUFACTURER’S INSTRUCTIONS

A. Compliance: Comply with manufacturer’s product data, including product technical bulletins and product guide specification instructions.

3.2 EXAMINATION

A. Inspect surfaces that will receive acrylic coating system to make sure they are clean, smooth, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.

B. Verify that all roof penetrations, mechanical equipment, cants, edge metal, and other on-roof items are in place and secure.

C. Verify that all critical areas around the immediate vicinity of the spray area are suitably protected.

D. Verify all roof drains are clean and in working order.

E. Verify that all air conditioning and air intake vents are suitably protected or closed.

3.03 PREPARATION

A. Prior to coating application, all existing non-embedded granule surfacing material shall be removed by means of a stiff bristle street broom, powered mechanical sweeper, or vacuuming. All loose dirt and dust remaining after granule removal must be broomed and/or vacuumed from the roof. All blisters, ridges and other imperfections must be secured so that the surface will be clean and dry and a secure base for coating application.

B. Existing low areas where water ponds and areas with obviously poor drainage to roof scuppers, drains, or roof edges should be corrected by filling and/or tapering insulation or by adding drains. To prevent the ponding of water, the entire system must be well sloped into drains. Install additional drains as necessary.

C. Priming may be required on some substrates. Discuss with a Garland Company Technical Consultant.

D. Other types of Surfaces: Preparation of surfaces and use of materials may vary substantially with different types of new or existing roofs. Contact the local Garland Representative Justin Holliman 530-965-0884 for specific recommendations over other types of surfaces.

3.04 APPLICATION

A. Pyramic Plus LO Acrylic/Urethane Coating System:

1. Apply Garla Block primer at a rate of ½ gallon per 100 sq ft.
2. The first coat of the Pyramic Plus LO Base Coat shall be applied 24-48 hours after the surface is cleaned. In no case shall the coating be applied over a dirty surface. The first coat must be back rolled to achieve proper adhesion.

3. The Pyramic coating system shall be sprayed or roller applied in a cross hatch technique without causing runs or puddles.

4. The Pyramic coating system shall be evenly applied in 2 separate coats to achieve a **minimum system of 22-32 mils dry film thickness**. The base coat shall be applied at a rate of 2 gallons per 100 sq ft. The top coat shall be applied at a rate of 2 gallons per 100 sq ft. Allow thorough dry time between coats. **Base and top coats must be back rolled to insure proper adhesion and coverage.**

5. These minimum recommendations for material usage are for ideal conditions. The number of gallons per 100 square feet may need to increase due to uneven application, rough surface texture, wind conditions while spraying, or other variables.

6. No coating shall be applied if weather will not allow it to dry prior to exposure to precipitation or freezing temperatures.

3.5 FIELD QUALITY REQUIREMENTS

A. Manufacturer’s Field Services: Inspections by an employee of the coating manufacturer shall be made a minimum of 2 days per week during the installation to verify the proper installation of the system. Any areas that do not meet the minimum standards for application as specified herein shall be corrected at the contractor's expense. Manufacturer's inspection or verification shall not constitute acceptance of

responsibility for any improper application of material. A written/photo inspection report from the manufacturer must be provided to the owner, architect and general contractor on a weekly basis.

3.6 CLEANING

A. Surfaces not intended to receive elastomeric coating materials shall be protected during the application of the system. Should this protection not be effective, or not be provided, the respective surfaces shall be restored to their proper conditions by cleaning, repairing or replacing. All debris from completion of work shall be completely removed from the project site. The site shall be left in a broom-clean condition.

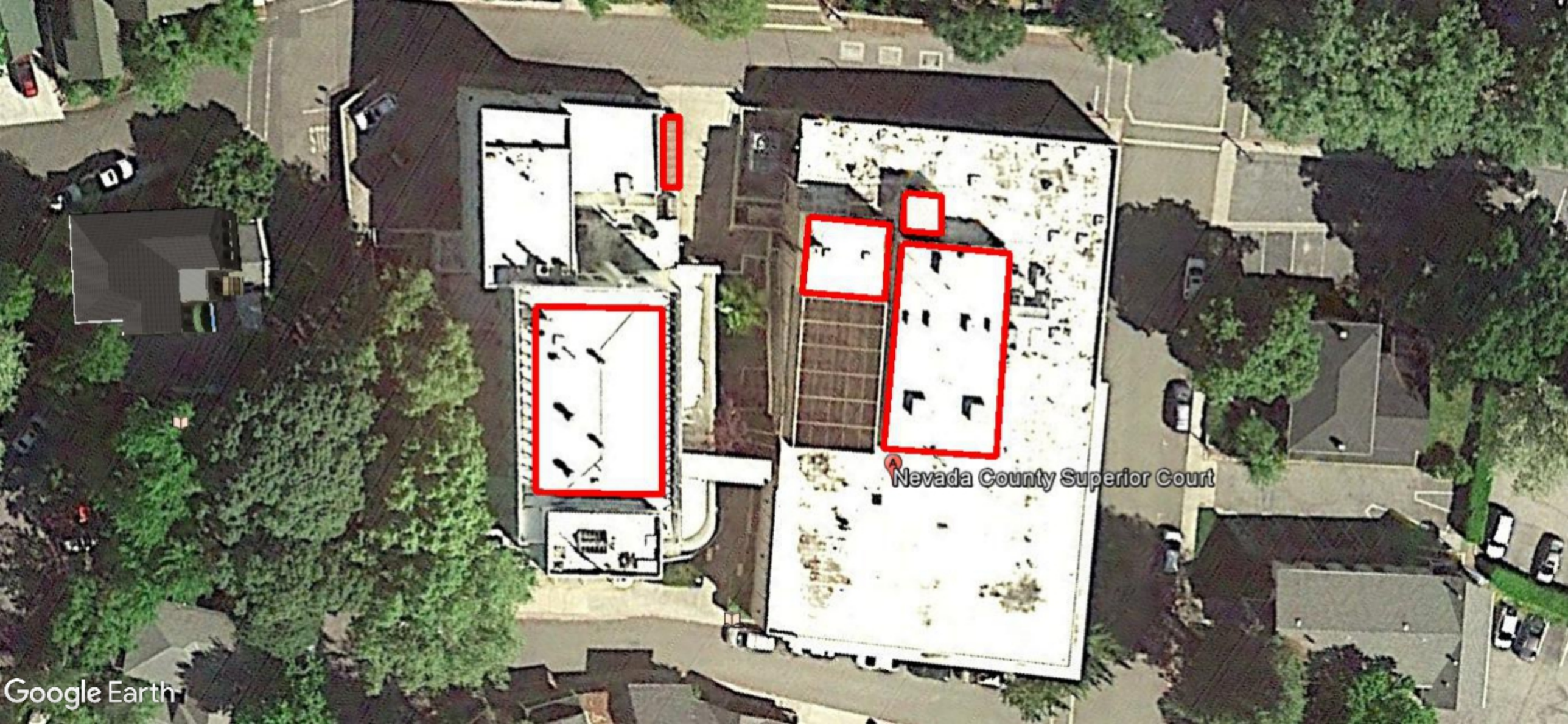
IV. MATERIALS

4.1

A. The following materials listed in these recommendations are available from The Garland Company:

1. Pyramic Plus LO®, high performance acrylic/urethane roof base coating.
2. Garland – Rust Go Metal Primer.

END OF SECTION


Nevada County Superior Court
Google Earth

SPECIFICATION
ROOF RESTORATION
LIQUITEC
HELLING LIBRARY
980 Helling Way, Nevada City, CA

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roof Restoration System in existing Single Ply at valleys and modular building.

1.2 RELATED SECTIONS

A. Section 07620 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.

B. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

A. SMACNA Architectural Sheet Metal Manual.

B. ANSI/SPRI ES-1 - Testing and Certification Listing of Shop Fabricated Edge Metal

C. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

A. Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Fascia Edges: Inspect and make repairs to membrane
   3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
   5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with Unibond and LiquiTec.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work.

Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection 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 Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.

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

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

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

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Owner, submit Manufacturer's written 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 installation and associated work.

B. Require attendance of Owner, roofing system manufacturer's representative and roofing foreman.

C. Objectives include:
1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
3. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
4. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
5. Review required inspection, testing, certifying procedures.
6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
7. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

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

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

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

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

E. Storage temperatures should be between 60°F to 80°F (15.6° to 26.7°C) and not exceed 110°F (43.3°C). Indoor ventilated storage is recommended Ensure jobsite storage is in a shaded and ventilated area. Do not store in direct sunlight. Keep materials away from open flame or welding sparks.

1.9 PROJECT CONDITIONS

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

B. Weather Condition Limitations: Do not apply products during inclement weather or when precipitation is expected.

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

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

E. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

F. Take precautions to ensure that materials do not freeze.

G. Minimum temperature for application is 50°F (10°C) and rising.

H. This roof restoration will begin after August 15, 2020, so the Summer children reading program will be over.

1.10 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed warranty.
   1. Warranty Period:
      a. 10 years.

A. 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. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Local area representative Justin Holliman 530-965-0884 jholliman@garlandind.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01600. Substitution request must be submitted seven days prior to bid date and time.

2.2 ROOF RESTORATION SYSTEM FOR EXISTING ROOFS

A. LiquiTec System:
1. Base Coating: LiquiTec
2. Top Coating: LiquiTec
3. Flashing: Repair or replace as needed. LiquiTec.
4. Reinforcement: Uni-Bond ST self-adhered tape on all seams.

2.3 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Liquid Flashing – Coating: LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

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

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

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

B. Verify that existing conditions meet the following requirements:
1. Existing roofing is either fully adhered or that the membranes mechanical fasteners are secured and functional.
2. Application of roofing materials over a brittle roof membrane is not recommended.

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

D. Repair existing roofing as necessary to provide a sound substrate for the fluid-applied membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

E. Wrap existing 6” x 6” wood posts with 2 piece pre-finished Kynar coated 24 gauge sleeves.

F. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.

G. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution 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 solution. Allow roof to dry thoroughly before continuing.

3.3 INSTALLATION

A. General Installation Requirements:
   1. Install in accordance with manufacturer's instructions.
   2. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
   3. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.

B. Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Fascia Edges: Inspect and make repairs to existing roofing.
   3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
   5. Roof Repairs: Repair blisters, stressed or cracked membrane, wrinkles and tenting.
   6. Coating Mixing Procedure:
      a. Mix Part A liquid for one minute using an electric heavy duty power drill and Jiffy mixer blade.
      b. Slowly pour contents of Part B jug, located inside the Part A pail, into the Part A container and mix the two components together for two minutes moving the Jiffy blade from top to bottom and along the sides to ensure the product is thoroughly mixed.
      c. Always mix entire kit contents together as packaged. Do not break down into smaller quantities.

   7. Field Details:
      a. Application of LiquiTec
         1) Verify that the surface to be coated is properly prepared.
         2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
   8. Application of Base Coat
      a. Apply a base coating of LiquiTec in a uniform manner at minimum application rate of 1.5 gal. /100 sq. ft. over the entire roof surface, including all flashings. Use a ¼" notched squeegee to spread coating and roller apply for uniform minimum coverage. Allow to cure thoroughly, but no more than 72 hours.
   9. Application of Top Coat
      a. Apply a top coating of LiquiTec Base or LiquiTec in a perpendicular direction over the base coat at 1.5 gal./100 sq. ft.

3.4 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

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

3.5 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to

protect personnel, roofs and structures, vehicles and utilities.

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

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

D. In addition 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 permitted over new roofing.

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of two days per week.

B. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Contractor, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.

B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.

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 defective work found at time above inspection as required to a produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

E. Advise architect upon completion of corrections.

F. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

A. Base Coating:
   1. LiquiTec Base: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
      a. Elongation, ASTM D 412: 433%
      b. Tensile Strength, ASTM D 412: 2300 psi
      c. Tear Resistance, ASTM D 624: 449 lbs./in
      d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
      e. Hardness, ASTM D2240 (Shore A): 80

f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
g. Static Puncture Resistance (Fully Reinforced System): ASTM D5602, 20 kg
h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D4073, 274 lbf
i. Tensile Load Strain (Fully Reinforced System): ASTM D4073, 150 lbf/in.
j. Toughness: 193 ft.-lbf/ft²
k. Dry Film Thickness (Fully Reinforced System), 80-88 mils
l. Lap Shear Strength (MB Seam with coating): ASTM D7379, 231 lbf/in.
m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
n. Flash Point: ASTM D 93, 110°F min. (43°C)
o. VOC: 0 g/l
p. Microbial Resistance: ASTM G21, No Microbial Growth

2. LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
a. Elongation, ASTM D 412: 433%
b. Tensile Strength, ASTM D 412: 2300 psi
c. Tear Resistance, ASTM D 624: 449 lbs./in
d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
e. Hardness, ASTM D2240 (Shore A): 80
f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
g. Static Puncture Resistance (Fully Reinforced System): ASTM D5602, 20 kg
h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D4073, 274 lbf
i. Tensile Load Strain (Fully Reinforced System): ASTM D4073,150 lbf/in.
j. Toughness:193 ft.-lbf/ft²
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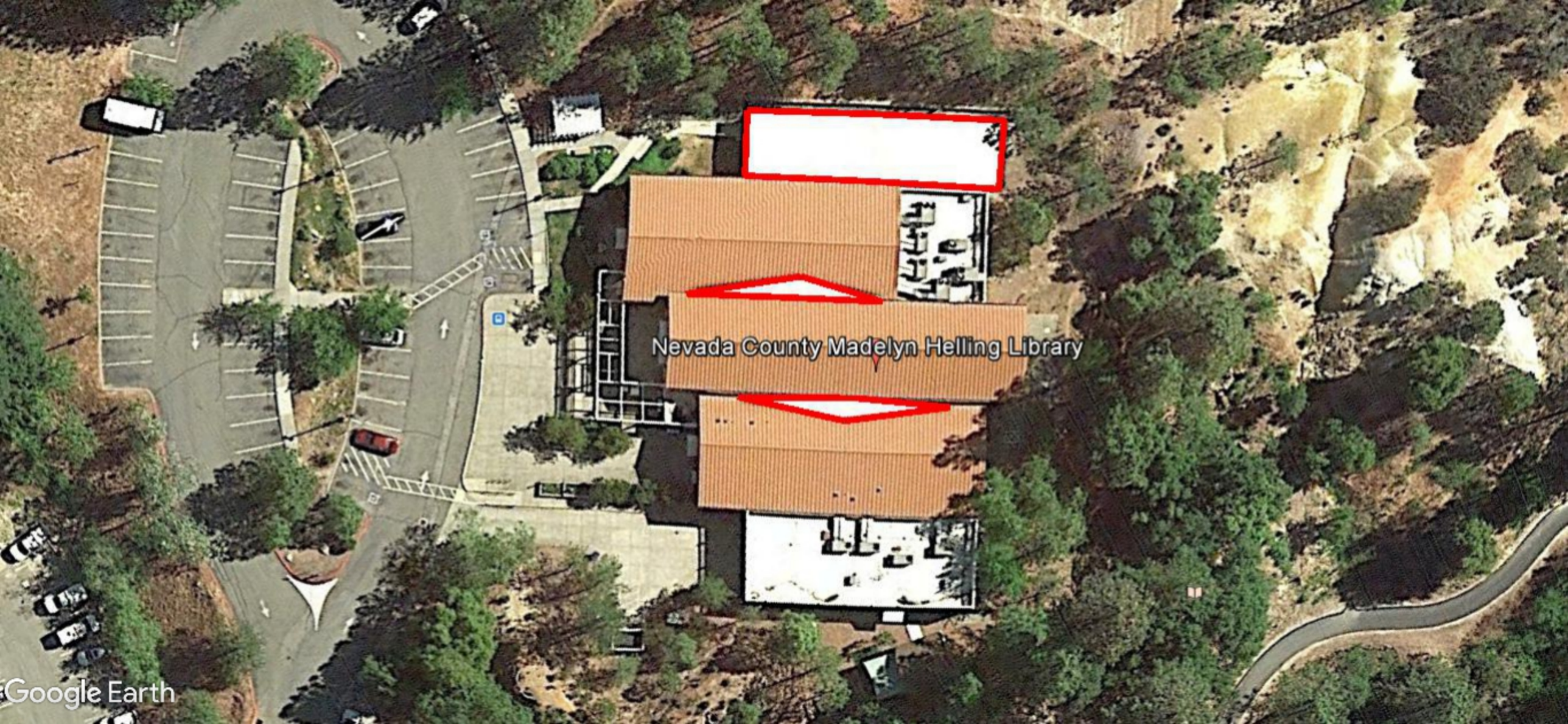
m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
n. Flash Point: ASTM D 93, 110°F min. (43°C)
o. VOC: 0 g/l
p. Microbial Resistance: ASTM G21, No Microbial Growth
q. Initial Reflectance: 0.84
r. Initial Emittance: 0.88
s. Initial SRI: 105

B. Reinforcement
1. UniBond ST: Fatigue resistant, polyester-faced adhesive tape.

a. Initial Reflectance: 0.84
b. Initial Emittance: 0.88
c. Initial SRI: 105

END OF SECTION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SPECIFICATION
ROOF and RAIN GUTTER RESTORATION
PYRAMIC PLUS LO
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INSTALLATION GUIDE SPECIFICATION 07500

PART I − GENERAL

1.1 SUMMARY

A. Provide labor, equipment, supervision, and materials to install roller-applied or spray- applied acrylic/urethane coating system as outlined in this specification to create a seamless coating system to the flat Coated-BUR roofs. Apply aliphatic urethane and rust inhibitor to all gutter systems.

B. The manufacturer's application instructions for each product used are to be considered part of these specifications, and should be followed at all times.

1.2 SUBMITTALS

A. Submit product data sheets and literature verifying fire ratings and physical properties of materials.

B. Submit material safety data sheets.

1.3 QUALITY ASSURANCE

A. Supplier Qualifications: The Pyramic Plus LO® Coating System, as supplied by The Garland Co., is approved for use on the project.

B. Applicator Qualifications: The applicator shall be approved by The Garland Company to apply the system. Manufacturer's written verification of applicator approval is required.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600. Substitution request must be submitted seven days prior to bid date and time.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Containers and Packaging: Deliver materials in original sealed containers, clearly marked with: manufacturer’s logo; full product name; and lot number(s).

B. Storage: Store materials between 50ºF and 100ºF with careful handling to prevent damage to products. If conditions exceed these ranges, special consideration in storage must be taken. Do not store at high temperatures in direct sunlight.

C. Protection: Protect all materials from freezing and other damage during transit, handling, storage, and installation.

1.5 PROJECT CONDITIONS

A. For application details, consult the local Garland Company representative for recommendations on the proper system to use on project substrate and at expected substrate and ambient temperatures.

B. Do not proceed with application of coating materials when surface or ambient temperature is less than 50ºF.

C. Do not apply materials unless surface to receive the acrylic coating is clean and dry.

D. Install all material in strict accordance with all published safety, weather, or applicable regulations of the manufacturer and/or local, state, and/or federal agencies which have jurisdiction.

E. This roof restoration will begin after August 15, 2002 so the children's Summer reading program will be over.

1.6 DETAIL WORK

A. Three course all curb corners with KEE Lock Mastic and Garmesh.
B. Rebuild the existing scuppers with KEE Lock Mastic and Garmesh.
C. Cut out all blisters and three course with KEE Lock Mastic and Garmesh.
D. Three course loose edges with KEE Lock Mastic and Garmesh.
E. Seal all pipes, conduits, etc. with Tuff Stuff.
F. Pressure wash all gutter systems.
G. Apply Rust Go Primer @ ¼ gallon per 100 sq ft.
H. Apply Unibond ST 4" to all gutter seams.
I. Apply White Knight Plus @ 2 gallons per 100 sq ft. Two thin coats may be required to prevent sagging.

II. PRODUCTS

2.0 EQUIPMENT

A. For recommended spray equipment guidelines, please refer to The Garland Companies Spray Application Guide or consult the spray equipment manufacturer directly.

2.1 SPRAY-APPLIED ACRYLIC/URETHANE COATING SYSTEM

A. The coating shall be roller or spray applied Pyramic acrylic/urethane coating system, manufactured by The Garland Company.

B. Physical Properties of Cured Coating System:

1. The coating system shall contain no plasticizers.
2. The coating system shall contain no migrating fire retardants.
3. The coating system shall have a Class A fire rating when tested according to the procedures outlined in ASTM E-108.
4. The protective coating system shall also meet the following physical property requirements:

Property	ASTM Method	Results
Tensile Strength, psi (Max @ 73ºF)	D1475	Minimum 250
% Elongation @ Break (73ºF)	D2370	Minimum 250
Wet adhesion to Specified Substrate	D6083	Minimum 3.0 pli
Permeance, perms	D6083	Maximum 20
Volume Solids % Weight Solids %	D6083	> 50 > 65

2.2 RELATED MATERIALS

A. Flashing, adhesives, thinners, elastomeric caulking compounds, primers, and similar materials shall be approved by the manufacturer of the coating. All materials used shall be applied in accordance with its manufacturer's recommendations.

III EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins and product guide specification instructions.

3.2 EXAMINATION

A. Inspect surfaces that will receive acrylic coating system to make sure they are clean, smooth, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.

B. Verify that all roof penetrations, mechanical equipment, cants, edge metal, and other on-roof items are in place and secure.

C. Verify that all critical areas around the immediate vicinity of the spray area are suitably protected.

D. Verify all roof drains are clean and in working order.

E. Verify that all air conditioning and air intake vents are suitably protected or closed.

3.03 PREPARATION

A. Prior to coating application, all existing non-embedded granule surfacing material shall be removed by means of a stiff bristle street broom, powered mechanical sweeper, or vacuuming. All loose dirt and dust remaining after granule removal must be broomed and/or vacuumed from the roof. All blisters, ridges and other imperfections must be secured so that the surface will be clean and dry and a secure base for coating application.

B. Existing low areas where water ponds and areas with obviously poor drainage to roof scuppers, drains, or roof edges should be corrected by filling and/or tapering insulation or by adding drains. To prevent the ponding of water, the entire system must be well sloped into drains. Install additional drains as necessary.

C. Priming may be required on some substrates. Discuss with a Garland Company Technical Consultant. Rain gutter preparation, clean with power wash and wire brush. Let dry. Apply Rust Go VOC primer to the entire inside of all the rain gutters.

D. Other types of Surfaces: Preparation of surfaces and use of materials may vary substantially with different types of new or existing roofs. Contact the local Garland Representative Justin Holliman 530-965-0884 for specific recommendations over other types of surfaces.

3.04 APPLICATION

A. Pyramic Plus LO Acrylic/Urethane Coating System:

1. Apply Garla Block primer at a rate of ½ gallon per 100 sq ft.
2. The first coat of the Pyramic Plus LO Base Coat shall be applied 24-48 hours after the surface is cleaned. In no case shall the coating be applied over a dirty surface. The first coat must be back rolled to achieve proper adhesion.

3. The Pyramic coating system shall be sprayed or roller applied in a cross hatch technique without causing runs or puddles.

4. The Pyramic coating system shall be evenly applied in 2 separate coats to achieve a **minimum system of 22-32 mils dry film thickness**. The base coat shall be applied at a rate of 2 gallons per 100 sq ft. The top coat shall be applied at a rate of 2 gallons per 100 sq ft. Allow thorough dry time between coats. **Base and top coats must be back rolled to insure proper adhesion and coverage.**

5. These minimum recommendations for material usage are for ideal conditions. The number of gallons per 100 square feet may need to increase due to uneven application, rough surface texture, wind conditions while spraying, or other variables.

6. No coating shall be applied if weather will not allow it to dry prior to exposure to precipitation or freezing temperatures.

B. Rain Gutters

1. After the inside of the rain gutters are cleaned and primed apply **White Knight Plus WC** to the entire inside of the rain gutters.

3.5 FIELD QUALITY REQUIREMENTS

A. Manufacturer’s Field Services: Inspections by an employee of the coating manufacturer shall be made a minimum of 2 days per week during the installation to verify the proper installation of the system. Any areas that do not meet the minimum standards for application as specified herein shall be corrected at the contractor's expense. Manufacturer's inspection or verification shall not constitute acceptance of responsibility for any improper application of material. A written/photo inspection report from the manufacturer must be provided to the owner, architect and general contractor on a weekly basis.

3.6 CLEANING

A. Surfaces not intended to receive elastomeric coating materials shall be protected during the application of the system. Should this protection not be effective, or not be provided, the respective surfaces shall be restored to their proper conditions by cleaning, repairing or replacing. All debris from completion of work shall be completely removed from the project site. The site shall be left in a broom-clean condition.

IV. MATERIALS

4.1

A. The following materials listed in these recommendations are available from The Garland Company:

1. Pyramic Plus LO®, high performance acrylic/urethane roof base coating.

END OF SECTION


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SPECIFICATION
ROOF RESTORATION
LIQUITEC
TRUCKEE GOV'T CENTER
10879 Donner Pass Rd, Truckee, CA

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roof Restoration System

1.2 RELATED SECTIONS

A. Section 07620 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.

B. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

A. SMACNA Architectural Sheet Metal Manual.

B. ANSI/SPRI ES-1 - Testing and Certification Listing of Shop Fabricated Edge Metal

C. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

A. Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Fascia Edges: Inspect and make repairs to membrane
   3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, coping cap, etc. Install Unibond ST to coping laps and apply LiquiTec.
   5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with Unibond and LiquiTec.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Closeout Submittals: Provide manufacturer's maintenance instructions that include

recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection 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 Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.

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

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

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

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Owner, submit Manufacturer's written 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 installation and associated work.

B. Require attendance of Owner, roofing system manufacturer's representative and roofing foreman.

C. Objectives include:
1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
3. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
4. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
5. Review required inspection, testing, certifying procedures.
6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
7. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until

ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

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

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

E. Storage temperatures should be between 60°F to 80°F (15.6° to 26.7°C) and not exceed 110°F (43.3°C). Indoor ventilated storage is recommended Ensure jobsite storage is in a shaded and ventilated area. Do not store in direct sunlight. Keep materials away from open flame or welding sparks.

1.9 PROJECT CONDITIONS

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

B. Weather Condition Limitations: Do not apply products during inclement weather or when precipitation is expected.

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

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

E. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

F. Take precautions to ensure that materials do not freeze.

G. Minimum temperature for application is 50°F (10°C) and rising.

1.10 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed warranty.
   1. Warranty Period:
      a. 10 years.

A. 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. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. (The), which is located at: 3800 E. 91st

St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Local area representative Justin Holliman 530-965-0884 jholliman@garlandind.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01600. Substitution request must be submitted seven days prior to bid date and time.

2.2 ROOF RESTORATION SYSTEM FOR EXISTING ROOFS

A. LiquiTec System:
1. Base Coating: LiquiTec
2. Top Coating: LiquiTec
3. Flashing: Repair or replace as needed. LiquiTec.
4. Reinforcement: Uni-Bond ST self-adhered tape on all seams.

2.3 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Liquid Flashing – Coating: LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

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

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

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

B. Verify that existing conditions meet the following requirements:
1. Existing roofing is either fully adhered or that the membranes mechanical fasteners are secured and functional.
2. Application of roofing materials over a brittle roof membrane is not recommended.

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

D. Repair existing roof roofing as necessary to provide a sound substrate for the fluid-applied membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

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

F. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution 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 solution. Allow roof to dry thoroughly before continuing.

3.3 INSTALLATION

A. General Installation Requirements:
   1. Install in accordance with manufacturer's instructions.
   2. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
   3. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.

B. Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Fascia Edges: Inspect and make repairs to existing roofing.
   3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
   4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
   5. Roof Repairs: Repair blisters, stressed or cracked membrane, wrinkles and tenting.
   6. Coating Mixing Procedure:
      a. Mix Part A liquid for one minute using an electric heavy duty power drill and Jiffy mixer blade.
      b. Slowly pour contents of Part B jug, located inside the Part A pail, into the Part A container and mix the two components together for two minutes moving the Jiffy blade from top to bottom and along the sides to ensure the product is thoroughly mixed.
      c. Always mix entire kit contents together as packaged. Do not break down into smaller quantities.

   7. Field Details:
      a. Application of LiquiTec
         1) Verify that the surface to be coated is properly prepared.
         2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
   8. Application of Base Coat
      a. Apply a base coating of LiquiTec in a uniform manner at minimum application rate of 1.5 gal. /100 sq. ft. over the entire roof surface, including all flashings. Use a ¼" notched squeegee to spread coating and roller apply for uniform minimum coverage. Allow to cure thoroughly, but no more than 72 hours.
   9. Application of Top Coat
      a. Apply a top coating of LiquiTec Base or LiquiTec in a perpendicular direction over the base coat at 1.5 gal./100 sq. ft.

3.4 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

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

3.5 PROTECTION

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

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

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

D. In addition 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 permitted over new roofing.

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of two days per week.

B. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Contractor, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.

B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.

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 defective work found at time above inspection as required to a produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

E. Advise architect upon completion of corrections.

F. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

A. Base Coating:
   1. LiquiTec Base: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
      a. Elongation, ASTM D 412: 433%
      b. Tensile Strength, ASTM D 412: 2300 psi
      c. Tear Resistance, ASTM D 624: 449 lbs./in
      d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
      e. Hardness, ASTM D2240 (Shore A): 80
      f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
      g. Static Puncture Resistance (Fully Reinforced System): ASTM D5602, 20 kg
      h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D4073, 274 lbf

i. Tensile Load Strain (Fully Reinforced System): ASTM D4073, 150 lbf/in.
j. Toughness: 193 ft.-lbf/ft²
k. Dry Film Thickness (Fully Reinforced System), 80-88 mils
l. Lap Shear Strength (MB Seam with coating): ASTM D7379, 231 lbf/in.
m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
n. Flash Point: ASTM D 93, 110°F min. (43°C)
o. VOC: 0 g/l
p. Microbial Resistance: ASTM G21, No Microbial Growth

2. LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
   a. Elongation, ASTM D 412: 433%
   b. Tensile Strength, ASTM D 412: 2300 psi
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   e. Hardness, ASTM D2240 (Shore A): 80
   f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
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   m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m3)
   n. Flash Point: ASTM D 93, 110°F min. (43°C)
   o. VOC: 0 g/l
   p. Microbial Resistance: ASTM G21, No Microbial Growth
   q. Initial Reflectance: 0.84
   r. Initial Emittance: 0.88
   s. Initial SRI: 105

B. Reinforcement
   1. UniBond ST: Fatigue resistant, polyester-faced adhesive tape.

      a. Initial Reflectance: 0.84
      b. Initial Emittance: 0.88
      c. Initial SRI: 105

END OF SECTION


10879 Donner Pass Rd A
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SPECIFICATION
ROOF REPLACEMENT – SINGLE PLY
CARPORT ROOFS
TRUCKEE GOV'T CENTER
10879 Donner Pass Rd, Truckee, CA

SECTION 07 54 20 –
SINGLE PLY MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including the Conditions of the Contract and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY
A. Section includes a fully adhered Solar Bright 60 Evaloy KEE single ply roofing system.

1.3 SUBMITTALS
A. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements. Samples: Submit two (2) samples of the following:
1. Membrane

2. Fasteners

3. Insulation
B. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.

C. Design Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7-10, In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article of this specification.

D. Certificates: Cool Roofing certified by Cool Roof Rating Council.

E. Shop Drawings: For roofing system. Include plans, elevations, sections, details and attachments to other Work.

F. Samples: If specifically requested for specified products; required for alternate products.

G. Installer Qualifications: Provide evidence that installers meet the requirements of Article 1.4.

H. Closeout Submittals:
1. O & M Manuals: Maintenance instructions.

2. Guarantee: Provide completed form per Article 1.5.

3. Manufacturer’s weekly inspection reports noting issues, corrections, and final inspection photos.

1.4 QUALITY ASSURANCE
A. Installer Qualifications:
1. Minimum of 5 years of experience on similar work; knowledge and understanding of standards referenced herein; skill necessary to perform in compliance with this specification. Installers failing to demonstrate the required experience, knowledge, or skill shall be removed from the project.

2. Factory trained and approved applicator.

3. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress. Maintain proper supervision of workmen.

4. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.
B. Testing Characteristics: UL Class A roof; I-90 wind uplift.

C. Applicator-Manufacturer Review: Provide Drawings and Specifications review by Applicator with agent of roofing manufacturer; obtain manufacturer's agreement that specified system is proper for application shown.

D. Manufacturers Participation:
1. Pre-Application Job-Site Conference: Arranged by Applicator, with a minimum of 1 week advance notice; for review of storage, handling, protection, surface preparation, materials and application specifications; attended by applicator, his foreman, inspector, and manufacturer's agent.

2. Source Quality Control: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001.

3. When the Project is in progress, the roofing system manufacturer will provide the following:
a. Report progress and quality of the work as observed.

b. Provide job site inspections a minimum of two (2) days a week throughout the course of construction.

c. Provide electronic inspection reports submitted weekly to the Owner.

d. Report to the Owner in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.

e. Confirm after completion that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.5 WARRANTY
A. Manufacturer: Provide 15 year “No Dollar Limit” warranty on manufacturers form. Warranty shall period shall begin on date of acceptance of roofing by Owner.

B. Manufacturer will provide the following services at years 2, 5, 10, & 15 at no cost to the owner.
1. Inspection by a technical service representative and delivery of a written inspection report documenting roof conditions.

2. General rooftop housekeeping, subject to limits but generally including removal of incidental debris.

C. Installer: Provide in required form for a period of two (2) years from date of acceptance by Owner.

PART 2 - PRODUCTS
2.1 KEE SINGLE-PLY ROOFING
A. Acceptable Products:
1. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this section.

2. The design is based upon roofing systems by The Garland Company Inc./Viking, Local representative Justin Holliman 530-965-0884
a. Solar Bright 60 Membrane (ASTM D 751)

b. Membrane Thickness: (ASTM D 751) 60 mil nominal.

c. Breaking Strength (ASTM D 751): 515 lbf/in

d. Tearing Strength (ASTM D 751): 275 lbf/in

e. Factory Seam Strength (ASTM D 751) 90 lbf

f. Solar Reflectivity (ASTM E 903) 81%

g. Emissivity (ASTM E 903) 95%

B. Alternate Products: The Owner will review all alternate products and decide if they meet all of the requirements of the specification.

C. Parapet Wall Covering: 0.060 inch thick.

2.2 UNDERLAYMENT
A. Slip Sheet: N/A

2.3 NAILERS
A. Douglas Fir; No. 2 or better, pressure treated; no creosote or asphalt preservatives allowed.

2.4 ROOF BOARD INSULATION
A. Roof Insulation:
1. ¼” per 12” tapered poly-iso insulation.

2. ½”inch thick Dens Deck primed.

3. Attachment Method: Mechanically fastened.
2.5 FASTENERS
A. Heavy duty #15 threaded fastener with a #3 Phillips drive used with Fastening Plate to secure Mechanically Fastened Roofing Systems. It is used on minimum 22 gauge steel decks or minimum 15/32" CDX plywood decks. It is also designed to offer an optimum combination of driving performance, back-out and corrosion resistance with excellent pullout performance.

B. Fastening Plate: A 2-3/8" diameter metal barbed fastening plate used with HP-X, CD-10 or HD 14-10 Fasteners for membrane or insulation securement. This plate can be used for membrane or insulation securement on Mechanically Fastened Roofing Systems.

C. Insulation Fastening Plate: A nominal 3-inch metal plate used for insulation attachment in conjunction with the appropriate fastener.

D. Nails: SFS 2-1/4 inch long wood deck fastener with domed convex stress plate, or No. 14 1-5/8 inch long fastener with 2 inch round metal barbed stress plate.
2.6 ACCESSORIES
A. Solar Bright 60 membrane shall be used for all flashing requirements to match the field membrane and warranty expectations selected for the roofing system.

B. Solar Bright 60 Inside Corners: Pre-molded corner flashing for inside corners. 80 mil thickness. Color - White.

C. Solar Bright Outside Corners: Pre-molded corner flashing for outside corners. 80 mil thickness. Color - White.

D. Solar Bright T-Joint Covers: 40 mil thick non-reinforced PVC flashing cut into a 4.5 inch (114mm) diameter circle used to seal step-offs at splice intersections.

E. Solar Bright Pipe Flashings: A pre-molded flashing and clamping ring used for pipe penetrations. Available for 1 inch to 6 inch (25 - 152mm) diameter pipes.

F. Solar Bright Split Pipe Seals: Pre-fabricated flashing consisting of 80 mil reinforced Membrane for pipes 1 inch to 6 inch (25 - 152mm) in diameter. A split (cut) and overlap tab are incorporated to allow the pipe seal to be opened and wrapped around the pipe when it is not possible to pull a standard pipe flashing over a round penetration.

G. Solar Bright Non-Reinforced Flashing: 80 mil thick rolls 12 inches and 24 inches wide. Used for inside/outside corners and field fabricated pipe flashings when use of pre-molded accessories is not feasible.

H. Single ply Coated Sheet Metal: Provide where flashing, gravel stops and sheet metal are in contact with Single -ply roofing membrane.

2.7 SOLVENT, SEALANT, AND ADHESIVES
A. As recommended by manufacturer.

B. SolarBright VOC Bonding Adhesive: Solvent-based contact adhesive that allows bonding of membrane to various porous and non-porous substrates.
1. Base: Synthetic Rubber.

2. Color: Pale Yellow.

3. Solids: 24.2 percent.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

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

D. Do not commence Work until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION
A. Remove existing BUR on carport areas- lower roofs. Dispose of removed materials in proper location. Contractor will be responsible for scheduling and passing Building Dept Permit inspections.

B. Do not apply wet roofing, on wet application surface, or when temperature of deck less than 50 degrees F.

C. Provide entire roof system including treated wood nailers, Single-ply coated sheet metal, and coordination of items such as roof drains, sumps, jacks, etc.

D. Protect adjoining materials from stains particularly around perimeter of building; prevent debris from clogging roof drains.

E. Deck surface swept clean and dry; keep free of loose and foreign materials.

F. Safety Stripe: Install Garland approved product for a 4” wide yellow safety stripe painted onto the new surface 6’ back from any flat roofs that have no safety barrier.

3.3 INSTALLATION
A. Install in conformance with referenced standards, manufacturer's written directions, as shown, and as specified.
1. Remove existing roofing system (s). Contractor will be responsible for removal and disposal of any Asbestos containing materials. If any Asbestos containing materials are found the Contractor will be responsible for proper Asbestos removal certifications and hazardous material disposal permitting required for this work.

2. Remove and cover existing roof drains with plywood or appropriate material. Fasten with screws or appropriate fasteners.

2. Install new perimeter type gutter system. Tie new down spouts into existing down spouts.

3. Install tapered insulation system.

4. Install Dens Deck.

5. Secure insulation to the substrate with the required mechanical fasteners or insulation adhesive in accordance with the manufacturer's current application guidelines.

6. Securely attach insulation to the roof deck for Adhered Roofing Systems. Attachment must have been successfully tested to meet or exceed the calculated uplift pressure required by Factory Mutual (FM I-90) & the International Building Code (ASCE-7) or ANSI/SPRI WD-1.

7. Install new sheet metal flashing on top of wall to match existing.
B. Application; Adhered system over roof deck
1. Position SolarBright membrane over the acceptable substrate. Fold membrane sheet back lengthwise so half the underside of the membrane is exposed.

2. Apply SolarBright Bonding Adhesive in accordance with the manufacturer's published instructions, to the exposed underside of the membrane and the corresponding substrate area. Do not apply Bonding Adhesive along the splice edge of the membrane to be hot air welded over the adjoining sheet. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.

3. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded section of the membrane sheet immediately after rolling the membrane into the adhesive with a soft bristle push broom to achieve maximum contact.

4. Fold back the unbonded half of the sheet lengthwise and repeat the bonding procedures.

5. Position adjoining sheets to allow a minimum overlap of 2 inches (51mm).

6. Hot-air weld the SolarBright membrane sheets using the Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's hot air welding procedures.

7. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches (51mm) and complete the bonding procedures as stated previously.

8. Parapet Wall Covering: Install as shown, extend to full height of parapet; lap under parapet cap flashing and over wall substrate 2 inches minimum on the back side of the wall. Secure in place 9” on center on the outside face to assure a completely watertight installation.

C. Fasteners:
1. General: Per manufacturer's recommendation; fastening length and pattern based on performance values supplied by the fastener/disc manufacturer and conforming to Factory Mutual I-90 fastening pattern.

2. Walkway Fastening: Provide 2 inch continuous heat weld strip around perimeter of membrane.
D. Hot Air Welding
1. All field seams exceeding 10 feet in length shall be welded with an approved automatic welder.

2. All field seams must be clean and dry prior to initiating any field welding.

3. Remove foreign materials from the seams (dirt, oils, etc.) with Acetone or authorized alternative. Use CLEAN WHITE COTTON cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder. Do not use denim or synthetic rags for cleaning.

4. All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.

5. Contaminated areas within a seam will inhibit proper welding and will require a membrane patch.

E. Hand Welding
1. The lap or seam area of the membrane should be intermittently tack welded to hold the membrane in place.

2. The back "interior" edge of the membrane shall be welded first, with a thin, continuous weld to concentrate heat along the exterior edge of the lap during the final welding pass.

3. The nozzle of the hand held hot air welder shall be inserted into the lap at a 45° angle to the lap. Once the polymer on the material begins to flow, a hand roller shall be use to apply pressure at a right angle to the tip of the hand welder. Properly welded seams shall utilize a 1-1/2 inch wide nozzle, to create a homogeneous weld, a minimum of 1-1/2 inches in width.

4. Smaller nozzles may be used for corners, and other field detailing, maintaining a minimum 1 inch weld.

F. Automatic Machine Welding
1. Follow all manufacturers’ instructions for the safe operation of the automatic welder.

2. Follow local code requirements for electric supply, grounding and surge protection.

3. The use of a dedicated, portable generator is highly recommended to ensure a consistent electrical supply, without fluctuations that can interfere with weld consistency.

4. Properly welded seams shall utilize a 1-1/2 inch wide nozzle, to create a homogeneous weld, a minimum of 1-1/2 inches in width.

G. Inspection
1. The job foreman and/or supervisor shall initiate daily inspections of all completed work which shall include, but is not limited to the probing of all field welding with a dull pointed instrument to assure the quality of the application and ensure that any equipment or operator deficiencies are immediately resolved.

2. Ensure that all aspects of the installation (sheet layout, attachment, welding, flashing details, etc.) are in strict accordance with the most current Solar Bright Roofing Systems Specifications and Details.

3. Excessive patching of field seams because of inexperienced or poor workmanship will not be accepted at time of FINAL INSPECTION FOR WARRANTY ACCEPTANCE.
H. Roof Drains
1. Flash all roof drains in accordance with Solar Bright roof drain details.

2. Replace all worn or broken parts that may cut the Solar Bright membrane or prevent a watertight seal. This includes the clamping ring and strainer basket.

3. Replace all drain bolts or clamps used to hold the drain compression ring to the drain bowl.

4. Solar Bright non-reinforced 60 mil membrane shall be used for flashing the drain assembly. Drain assemblies and basins or "sumps" must be free of any asphalt or coal tar pitch residue prior to installation.

5. The drain target sheet should be sized and installed to provide for a minimum of 12 inch of exposed 60 mil on all sides of the drain.

3.4 FIELD QUALITY CONTROL
A. Perform field inspection and testing as required under provisions of Division 01 Section Quality Requirements & manufacturers recommendations.

B. Heat weld test cuts will be required. One (1) test cut per 5,000 square feet will be required.

C. Correct defects or irregularities discovered during field inspection.

D. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of two (2) days per week. A copy of the specification should also be on site at all times.

3.5 CLEANING
A. Keep premises free from accumulation of waste and debris. At completion of installation remove surplus materials and debris.

B. At completion clean exposed surfaces in a manner that will not damage finish.

3.6 FINAL INSPECTION
A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.

B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. The roofing system manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor.

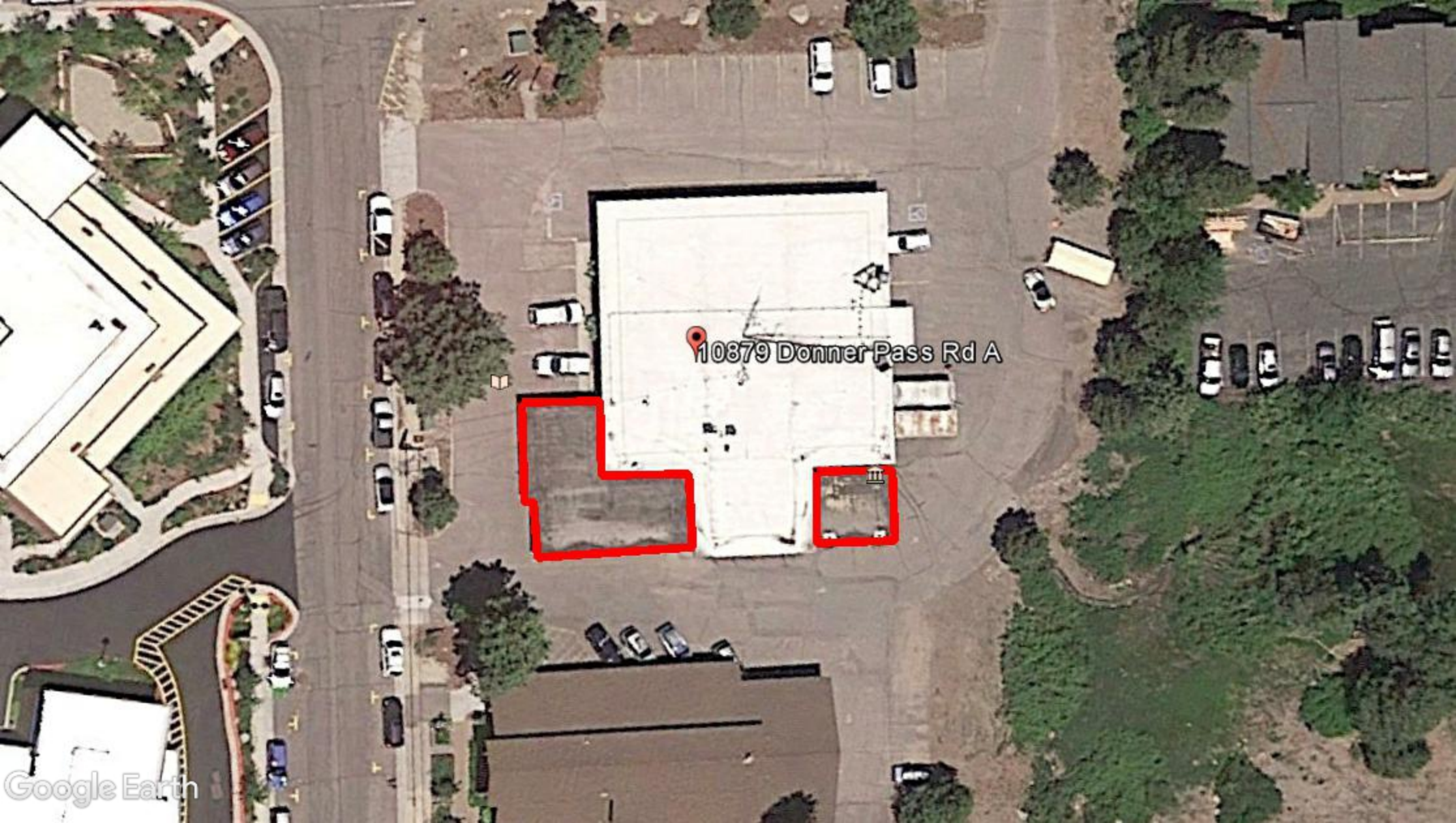
D. If core cuts verify the presence of damp or wet materials, the [Roofing] Contractor shall be required to replace the damaged areas at his own expense.

E. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements

F. Notify the Contractor, Architect, & Owner upon completion of corrections.

G. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

END SECTION 07 54 20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SECTION 07 54 20 – SINGLE PLY MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes a fully adhered Solar Bright 60 Evaloy KEE single ply roofing system.

1.3 SUBMITTALS

A. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements. Samples: Submit two (2) samples of the following:

1. Membrane
2. Fasteners
3. Insulation

B. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.

C. Design Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7-10, In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article of this specification.

D. Certificates: Cool Roofing certified by Cool Roof Rating Council.

E. Shop Drawings: For roofing system. Include plans, elevations, sections, details and attachments to other Work.

F. Samples: If specifically requested for specified products; required for alternate products.

G. Installer Qualifications: Provide evidence that installers meet the requirements of Article 1.4.

H. Closeout Submittals:

1. O & M Manuals: Maintenance instructions.
2. Guarantee: Provide completed form per Article 1.5.
3. Manufacturer’s weekly inspection reports noting issues, corrections, and final inspection photos.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Minimum of 5 years of experience on similar work; knowledge and understanding of standards referenced herein; skill necessary to perform in compliance with this specification. Installers failing to demonstrate the required experience, knowledge, or skill shall be removed from the project.

2. Factory trained and approved applicator.

3. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress. Maintain proper supervision of workmen.

4. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.

B. Testing Characteristics: UL Class A roof; I-90 wind uplift.

C. Applicator-Manufacturer Review: Provide Drawings and Specifications review by Applicator with agent of roofing manufacturer; obtain manufacturer's agreement that specified system is proper for application shown.

D. Manufacturers Participation:

1. Pre-Application Job-Site Conference: Arranged by Applicator, with a minimum of 1 week advance notice; for review of storage, handling, protection, surface preparation, materials and application specifications; attended by applicator, his foreman, inspector, and manufacturer's agent.

2. Source Quality Control: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001.

3. When the Project is in progress, the roofing system manufacturer will provide the following:

a. Report progress and quality of the work as observed.

b. Provide job site inspections a minimum of two (2) days a week throughout the course of construction.

c. Provide electronic inspection reports submitted weekly to the Owner.

d. Report to the Owner in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.

e. Confirm after completion that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.5 WARRANTY

A. Manufacturer: Provide 15 year "No Dollar Limit" warranty on manufacturers form. Warranty shall period shall begin on date of acceptance of roofing by Owner.

B. Manufacturer will provide the following services at years 2, 5, 10, & 15 at no cost to the owner.

1. Inspection by a technical service representative and delivery of a written inspection report documenting roof conditions.

2. General rooftop housekeeping, subject to limits but generally including removal of incidental debris.

C. Installer: Provide in required form for a period of two (2) years from date of acceptance by Owner.

PART 2 - PRODUCTS

2.1 KEE SINGLE-PLY ROOFING

A. Acceptable Products:

1. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this section.

2. The design is based upon roofing systems by The Garland Company Inc./Viking, Local representative Justin Holliman 530-965-0884

a. Solar Bright 60 Membrane (ASTM D 751)

b. Membrane Thickness: (ASTM D 751) 60 mil nominal.

c. Breaking Strength (ASTM D 751): 515 lbf/in

d. Tearing Strength (ASTM D 751): 275 lbf/in

e. Factory Seam Strength (ASTM D 751) 90 lbf

f. Solar Reflectivity (ASTM E 903) 81%

g. Emissivity (ASTM E 903) 95%

B. Alternate Products: The Owner will review all alternate products and decide if they meet all of the requirements of the specification.

C. Parapet Wall Covering: 0.060 inch thick.

2.2 UNDERLAYMENT

A. Slip Sheet: N/A

2.3 NAILERS

A. Douglas Fir; No. 2 or better, pressure treated; no creosote or asphalt preservatives allowed.

2.4 ROOF BOARD INSULATION

A. Roof Insulation:

1. ¼” per 12” tapered polyiso insulation.

2. ½”inch thick Dens Deck primed.

3. Attachment Method: Mechanically fastened.

2.5 FASTENERS

A. Heavy duty #15 threaded fastener with a #3 Phillips drive used with Fastening Plate to secure Mechanically Fastened Roofing Systems. It is used on minimum 22 gauge steel decks or minimum 15/32" CDX plywood decks. It is also designed to offer an optimum combination of driving performance, back-out and corrosion resistance with excellent pullout performance.

B. Fastening Plate: A 2-3/8" diameter metal barbed fastening plate used with HP-X, CD-10 or HD 14-10 Fasteners for membrane or insulation securement. This plate can be used for membrane or insulation securement on Mechanically Fastened Roofing Systems.

C. Insulation Fastening Plate: A nominal 3-inch metal plate used for insulation attachment in conjunction with the appropriate fastener.

D. Nails: SFS 2-1/4 inch long wood deck fastener with domed convex stress plate, or No. 14 1-5/8 inch long fastener with 2 inch round metal barbed stress plate.

2.6 ACCESSORIES

A. Solar Bright 60 membrane shall be used for all flashing requirements to match the field membrane and warranty expectations selected for the roofing system.

B. Solar Bright 60 Inside Corners: Pre-molded corner flashing for inside corners. 80 mil thickness. Color - White.

C. Solar Bright Outside Corners: Pre-molded corner flashing for outside corners. 80 mil thickness. Color - White.

D. Solar Bright T-Joint Covers: 40 mil thick non-reinforced PVC flashing cut into a 4.5 inch (114mm) diameter circle used to seal step-offs at splice intersections.

E. Solar Bright Pipe Flashings: A pre-molded flashing and clamping ring used for pipe penetrations. Available for 1 inch to 6 inch (25 - 152mm) diameter pipes.

F. Solar Bright Split Pipe Seals: Pre-fabricated flashing consisting of 80 mil reinforced Membrane for pipes 1 inch to 6 inch (25 - 152mm) in diameter. A split (cut) and overlap tab are incorporated to allow the pipe seal to be opened and wrapped around the pipe when it is not possible to pull a standard pipe flashing over a round penetration.

G. Solar Bright Non-Reinforced Flashing: 80 mil thick rolls 12 inches and 24 inches wide. Used for inside/outside corners and field fabricated pipe flashings when use of pre-molded accessories is not feasible.

H. Single ply Coated Sheet Metal: Provide where flashing, gravel stops and sheet metal are in contact with Single -ply roofing membrane.

2.7 SOLVENT, SEALANT, AND ADHESIVES

A. As recommended by manufacturer.

B. SolarBright VOC Bonding Adhesive: Solvent-based contact adhesive that allows bonding of membrane to various porous and non-porous substrates.

1. Base: Synthetic Rubber.

2. Color: Pale Yellow.

3. Solids: 24.2 percent.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

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

D. Do not commence Work until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Do not apply wet roofing, on wet application surface, or when temperature of deck less than 50 degrees F.

B. Provide entire roof system including treated wood nailers, Single-ply coated sheet metal, and coordination of items such as roof drains, sumps, jacks, etc.

C. Protect adjoining materials from stains particularly around perimeter of building; prevent debris from clogging roof drains.

D. Deck surface swept clean and dry; keep free of loose and foreign materials.

3.3 INSTALLATION

A. Install in conformance with referenced standards, manufacturer's written directions, as shown, and as specified.

1. Remove existing roofing system (s).

2. Install new gutter system.

3. Install tapered insulation system.

4. Install Dens Deck.

5. Secure insulation to the substrate with the required mechanical fasteners or insulation adhesive in accordance with the manufacturer's current application guidelines.

6. Securely attach insulation to the roof deck for Adhered Roofing Systems. Attachment must have been successfully tested to meet or exceed the calculated uplift pressure required by Factory Mutual (FM I-90) & the International Building Code (ASCE-7) or ANSI/SPRI WD-1.

7. Install new sheet metal flashing on top of wall to match existing.

B. Application; Adhered system over roof deck

1. Position SolarBright membrane over the acceptable substrate. Fold membrane sheet back lengthwise so half the underside of the membrane is exposed.

2. Apply SolarBright Bonding Adhesive in accordance with the manufacturer's published instructions, to the exposed underside of the membrane and the corresponding substrate area. Do not apply Bonding Adhesive along the splice edge of the membrane to be hot air welded over the adjoining sheet. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.

3. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded section of the membrane sheet immediately after rolling the membrane into the adhesive with a soft bristle push broom to achieve maximum contact.

4. Fold back the unbonded half of the sheet lengthwise and repeat the bonding procedures.

5. Position adjoining sheets to allow a minimum overlap of 2 inches (51mm).

6. Hot-air weld the SolarBright membrane sheets using the Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's hot air welding procedures.

7. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches (51mm) and complete the bonding procedures as stated previously.

8. Parapet Wall Covering: Install as shown, extend to full height of parapet; lap under parapet cap flashing and over wall substrate 2 inches minimum on the back side of the wall. Secure in place 9” on center on the outside face to assure a completely watertight installation.

C. Fasteners:

1. General: Per manufacturer's recommendation; fastening length and pattern based on performance values supplied by the fastener/disc manufacturer and conforming to Factory Mutual I-90 fastening pattern.

2. Walkway Fastening: Provide 2 inch continuous heat weld strip around perimeter of membrane.

D. Hot Air Welding

1. All field seams exceeding 10 feet in length shall be welded with an approved automatic welder.

2. All field seams must be clean and dry prior to initiating any field welding.

3. Remove foreign materials from the seams (dirt, oils, etc.) with Acetone or authorized alternative. Use CLEAN WHITE COTTON cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder. **Do not use denim or synthetic rags for cleaning**.

4. All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld.

5. Contaminated areas within a seam will inhibit proper welding and will require a membrane patch.

E. Hand Welding

1. The lap or seam area of the membrane should be intermittently tack welded to hold the membrane in place.

2. The back "interior" edge of the membrane shall be welded first, with a thin, continuous weld to concentrate heat along the exterior edge of the lap during the final welding pass.

3. The nozzle of the hand held hot air welder shall be inserted into the lap at a 45° angle to the lap. Once the polymer on the material begins to flow, a hand roller shall be use to apply pressure at a right angle to the tip of the hand welder. Properly welded seams shall utilize a 1-1/2 inch wide nozzle, to create a homogeneous weld, a minimum of 1-1/2 inches in width.

4. Smaller nozzles may be used for corners, and other field detailing, maintaining a minimum 1 inch weld.

F. Automatic Machine Welding

1. Follow all manufacturers' instructions for the safe operation of the automatic welder.

2. Follow local code requirements for electric supply, grounding and surge protection.

3. The use of a dedicated, portable generator is highly recommended to ensure a consistent electrical supply, without fluctuations that can interfere with weld consistency.

4. Properly welded seams shall utilize a 1-1/2 inch wide nozzle, to create a homogeneous weld, a minimum of 1-1/2 inches in width.

G. Inspection

1. The job foreman and/or supervisor shall initiate daily inspections of all completed work which shall include, but is not limited to the probing of all field welding with a dull pointed instrument to assure the quality of the application and ensure that any equipment or operator deficiencies are immediately resolved.

2. Ensure that all aspects of the installation (sheet layout, attachment, welding, flashing details, etc.) are in strict accordance with the most current Solar Bright Roofing Systems Specifications and Details.

3. Excessive patching of field seams because of inexperienced or poor workmanship will not be accepted at time of FINAL INSPECTION FOR WARRANTY ACCEPTANCE.

H. Roof Drains

1. Flash all roof drains in accordance with Solar Bright roof drain details.

2. Replace all worn or broken parts that may cut the Solar Bright membrane or prevent a watertight seal. This includes the clamping ring and strainer basket.

3. Replace all drain bolts or clamps used to hold the drain compression ring to the drain bowl.

4. Solar Bright non-reinforced 60 mil membrane shall be used for flashing the drain assembly. Drain assemblies and basins or "sumps" must be free of any asphalt or coal tar pitch residue prior to installation.

5. The drain target sheet should be sized and installed to provide for a minimum of 12 inch of exposed 60 mil on all sides of the drain.

3.4 FIELD QUALITY CONTROL

A. Perform field inspection and testing as required under provisions of Division 01 Section Quality Requirements & manufacturers recommendations.

B. Heat weld test cuts will be required. One (1) test cut per 5,000 square feet will be required.

C. Correct defects or irregularities discovered during field inspection.

D. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of two (2) days per week. A copy of the specification should also be on site at all times.

3.5 CLEANING

A. Keep premises free from accumulation of waste and debris. At completion of installation remove surplus materials and debris.

B. At completion clean exposed surfaces in a manner that will not damage finish.

3.6 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.

B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. The roofing system manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor.

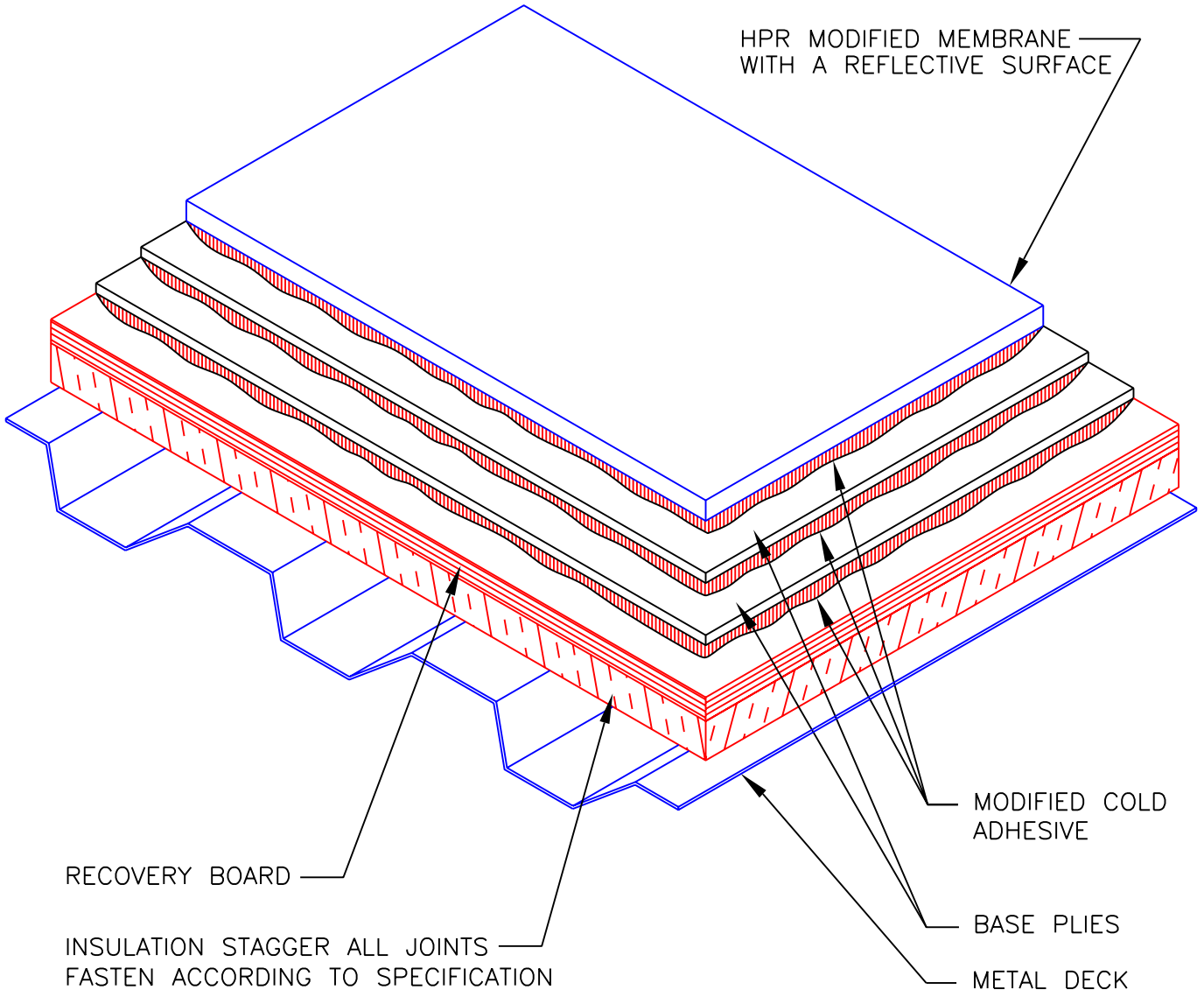
D. If core cuts verify the presence of damp or wet materials, the [Roofing] Contractor shall be required to replace the damaged areas at his own expense.

E. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements

F. Notify the Contractor, Architect, & Owner upon completion of corrections.

G. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

END SECTION 07 54 20



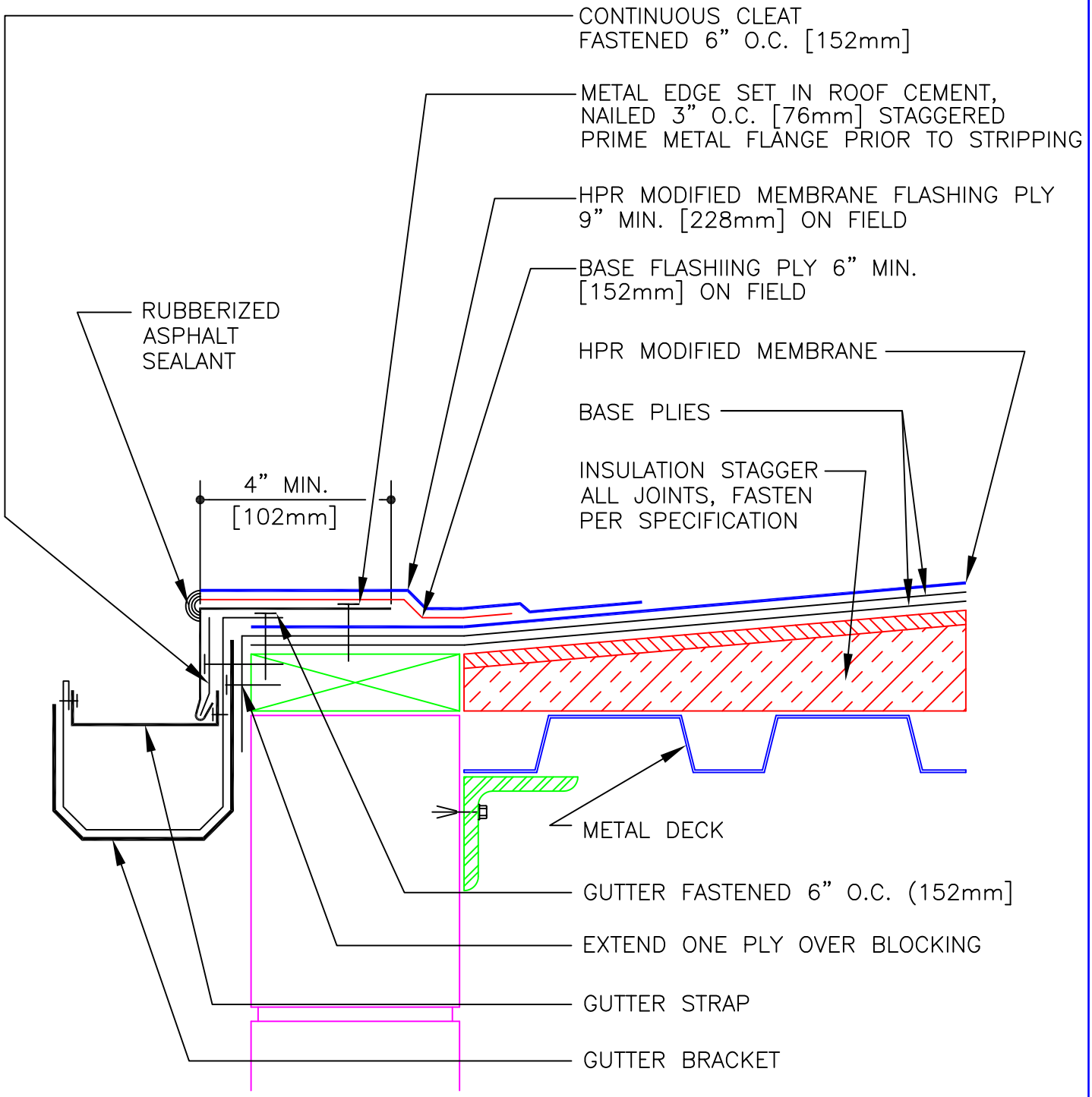
ALL PLIES SET IN MODIFIED COLD
ADHESIVE SEE SPECIFICATIONS FOR SURFACING

THE GARLAND COMPANY, INC.
GARLAND CANADA, INC.
THE GARLAND COMPANY UK, LTD

DETAIL:

COATED FINISH

COLD APPLIED



ALL PLIES SET IN MODIFIED COLD ADHESIVE
SEE SPECIFICATIONS FOR SURFACING

GARLAND
since 1895

THE GARLAND COMPANY, INC.

GARLAND CANADA, INC.

THE GARLAND COMPANY UK, LTD

DETAIL:

ROOF EDGE WITH GUTTER

COLD APPLIED

ADAM LABORATORIES, INC.

3807 PASADENA AVENUE, SUITE 190
SACRAMENTO, CA 95821
PHONE: (916) 979-9250
FAX: (916) 979-9251

Asbestos Report

Date: March 19, 2020

Client: County of Nevada

Site: 10879 Donner Pass Rd.
Truckee, CA

On March 18, 2020, a survey was conducted consisting of a site inspection, sample collection, lab analyses, and this written summary. The inspection area is a commercial site (car port) currently planned for renovation. Therefore, building materials such as roofing material will be impacted during the planned renovation in specific to isolated areas of the structure. An assessment of the said materials throughout the areas of impact was made and samples were collected of said areas of impact per the contractor's scope of work. This asbestos survey was conducted to confirm whether, or not asbestos is identified in all suspect building material.

Results indicate No Asbestos was detected. The information provided in this report can be used to obtain accurate bids from abatement contractors. Based on sample results, no asbestos was detected in the suspected building materials tested. All other materials that are not part of this survey shall be treated as asbestos containing material until proven otherwise by PLM analyses.

The above site address falls under the jurisdiction and is subject to the requirements of the local Air Quality Management District. The building material sample collection was conducted by a State OSHA Certified "Site Surveillance Technician" and/or "Asbestos Consultant" under Adam Laboratories Inc. (in accordance with Rule 902 Section 401.3). The location of asbestos containing material, quantity, percent, friability, type of asbestos, and date sampled can be found on the attached analytical lab report.

Approved by,

Adam Jahnsen, Certified Asbestos Consultant, DOSH #00-2813

Any building materials not mentioned in this report should be assumed as ACM until proven otherwise through proper sampling and analysis. This includes other areas that are not mentioned with similar materials. Upon discovery of unmentioned material, work must cease until further sampling is conducted.

This document is filed under lab identification number 20ABR485

ADAM Laboratories INC.

3807 Pasadena Ave. Ste., 190
Sacramento, CA 95821
Fax: (916) 979-9251
Phone: (916) 979-9250

AIHA Laboratory #163722

Lab #: 20AB485
Date Sampled: 3/18/2020
Date Analyzed: 3/18/2020
Sampled By: Adam Jahnsen
Analyzed By: Adam Jahnsen

Assessment and Analysis of Bulk Asbestos by Polarized Light Microscopy (PLM) EPA 600/M4 Method

CLIENT: *County of Nevada* ***SITE:*** *10879 Donner Pass Rd. Truckee, CA* ***CLAIM#*** *n/a*

No.	LAYERS	AREA FT²	LOCATION	DESCRIPTION	I.D.	RACM	RESULT
1	3	*	car port roof top layer	asphalt felt	Glass and Cellulose Fibers		NAD
2	1	*	car port roof bottom layer	insulation	Cellulose Fibers		NAD

LEGEND

NAD = Non Asbestos Detected. DL = detection limit: <1% asbestos (trace). I.D. = fiber identification and/or asbestos type - percent.

Friable Asbestos = NESHAP RACM (Regulated Asbestos Containing Material): can be crumbled, pulverized or reduced to powder by hand pressure.

Non-friable Asbestos = NESHAP Category I material (resilient floor covering, vinyl floor tile, asphalt roofing products, packings and gaskets that cannot be rendered airborne by hand pressure) and/or NESHAP Category II material (all other non-friable asbestos containing material). Note that because of age or treatment, Category I and Category II materials, can be, and/or have the potential to become RACM.

RACM = NESHAP Regulated Asbestos Containing Material is all Friable ACM (>1% asbestos), including some conditions of Non-friable Category I & II ACM.

NESHAP = US EPA National Emissions Standards for Hazardous Air Pollutants

APPROVED BY:

Adam Jahnsen, Lab Director
Certified Asbestos Consultant
CAL/OSHA: 00-2813

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Adam D Jahnsen
Name

Certification No. 00-2813

Expires on 08/12/20

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.