MADERA UNIFIED SCHOOL DISTRICT

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SECTION 06 10 00 - ROUGH CARPENTRY AND GENERAL WORK

PART 1: GENERAL

1-01 GENERAL:

A. SCOPE: The Work required under this section consists of all rough carpentry and general work and related items necessary and required to complete the Work as indicated in the Contract Documents. The Contractor shall provide all items, articles, materials, operations, or methods listed, mentioned or scheduled on the drawings and/or specified herein, including all labor, materials, equipment and incidentals necessary and required for their completion.

B. WORK INCLUDED: Without restricting the volume or generality of the above "Scope", the work to be performed under this section shall include, but is not limited to, the following:

1. Furnishing and installation of:

a. Wood framing, blocking, furring, bucks, backing and nailing blocks.

b. Temporary weatherproofing.

c. Any other work not included in other sections of these specifications.

d. Demolition work to the exterior and interior of the existing buildings indicated and/or required.

e. Installation of any work not specified to be installed by the supplier.

f. Patching work.

PART 2: PRODUCTS

2-01 MATERIALS:

A. LUMBER:

1. All lumber shall be graded and each piece grade stamped by an approved agency such as the West Coast Lumber Inspection Bureau (W.C.L.I.B.) Western Wood Products Association (W.W.P.A.), Pacific Lumber Inspection Bureau (P.L.I.B.), under provisions of those codes currently accepted by the International Conference of Building Officials.

a. Reference standard for this specification is West Coast Lumber Inspection Bureau "Standard Grading Rules for West Coast Lumber, No. 17".

2. Moisture Content: Lumber shall be dried to 19% maximum moisture content before incorporating in structure.

3. Species: Dimension lumber shall be Douglas Fir Larch unless otherwise indicated in the plans or specifications.

4. Sizes: Unless otherwise indicated, all lumber shall be surfaced four sides (S4S) and shall conform to those sizes indicated by Rule 16 which establishes standard sizes for "unseasoned" (S-GRN) and "dry" lumber (S-Dry).

5. Grade Requirements for Specific Uses:

   a. The below noted requirements are to be held as minimum standards and unless otherwise noted on the drawings, the following grades shall be used.

   b. Studs, blocking and top plates - No. 1 (paragraph 123-b, 124-b).

   c. Equipment platforms - No. 2

   d. Plywood sheathing (roofs, walls, floors) - Douglas Fir, Struct. 1.

B. PLYWOOD: Plywood used for structural purposes shall conform to the latest requirements of PS1-09 and each panel shall be legibly identified as to type, grade and species by the appropriate grade trademark of the American Plywood Association. Unless otherwise noted on the drawings, the grade shall be Structural Exposure 1, (interior type with exterior glue).

C. BOLTS, LAG SCREWS, AND SCREWS: Shall be commercial grade steel.

PART 3: EXECUTION

3-01 INSTALLATION:

A. SUPERINTENDENCE: This work shall be performed under a foreman experienced in building construction who shall coordinate all phases of the building activity and secure the necessary cooperation of subcontractors and material suppliers.

B. FRAMING: Walls and partitions, unless detailed otherwise, shall be framed with 2" studding of width called for.

1. Studs shall have a single bottom sill plate.

2. All walls and partitions shall be plumb and corners and angles solid. Blocks shall be cut-in where necessary to give nailing.

3. Blocking between joists and studding shall be provided at all points where gypsum board, fiberboard and plywood sheets adjoin each other or terminates at walls.

4. Blocking, furring strips, nailers and/or backing shall be provided in stud walls or ceilings for anchorage of all equipment, materials or specialties furnished or installed by other trades.

5. There shall not be less than two nails in every structural connection using nails. At least one-half of nail length shall be in member receiving point, except that 16d nails may be used in the connection of two 2" (nominal) pieces of lumber. Nails shall not be driven closer together than one-half their length, nor closer to the edge of the member than one-quarter their length. Where necessary to prevent splitting of lumber or at ends of ceiling stripping, holes for nails shall be pre-drilled. Wherever possible, nails driven perpendicular to the grain shall be used instead of toe nails.

6. Lag or wood screws shall be screwed and not driven into place. The hole to receive the screw shall first be bored of the same diameter of the shank, after which the hole shall be continued to depth equal to length of screw with diameter equal to diameter of screw at roof of thread. The screw shall penetrate two-thirds of its length into the far member.

7. No structural member shall be weakened by cutting, notching, boring or otherwise (for installation of piping, conduit or ductwork), unless specifically allowed by structural drawings.

C. CLEANING:

1. All debris and/or rubbish from the operation of this trade shall be cleaned up and removed from the site as the work progresses.

END OF SECTION 06100

SECTION 06 110 - ROUGH CARPENTRY FOR ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.

B. Related work specified elsewhere:

1. Division 07: Roofing
2. Division 09: Painting

1.2 SUMMARY:

A. This portion of the specification sets forth the general requirements, including the quality and type of materials required for the installation of all pressure treated and non pressure treated lumber used for wood curbs, nailing strips, miscellaneous blocking material, unexposed fillers, fascia, edging strips, deck replacement, etc

1.3 STORAGE:

A. All material specified herein shall be stored (after delivery to the site) so that it will be fully protected from damage and weather, and shall be stacked to prevent damage. All lumber shall be fully protected to maintain the original required moisture content as specified in item titled "Moisture Content".

1.4 OTHER REQUIREMENTS:

A. Dimensions indicated on the drawings are nominal dimensions (except where details show actual sizes) and shall be subject to the standard reductions required for surfacing or tolerances permitted by the grading rules. Unless otherwise indicated on drawings, all material shall be S4S (surfaced four sides).

1.5 PROTECTION:

A. All finished work shall be adequately protected against damage from any source.

1.6 COORDINATION:

A. Carpenters shall coordinate their work with that of the other trades so that progress continues without interruption.

PART 2 - PRODUCTS

2.1 WOOD - FRAMING AND CURBS:

A. GRADING RULES, GRADES, AND SPECIES

1. Lumber: Southern Pine, yellow pine, Douglas fir, spruce, ponderosa pine, larch or Hemlock and shall meet the following minimum grade requirement of construction standard (75% #1 and 25% #2); free from warping and visible decay. Lumber shall be graded according to the standard grading rules of the Southern Pine Inspection Bureau, the West Coast Lumber Inspection Bureau, or the Western Wood Products Association.

B. MOISTURE CONTENT

1. All lumber shall be air-dried or kiln-dried before treatment, so that the moisture content is not more than 19%. After treatment, it shall be kiln-dried at temperatures not exceeding 160 degrees F. (71 degrees C) so that the moisture content is not more than 19% at time of shipment

C. DECAY-RESISTANT TREATMENT:

1. Lumber in contact with roofing or acting as fascias, and all other exterior lumber, shall be pressure-treated with a waterborne preservative in accordance with AWPA Specification P5. Creosote and oil-borne preservatives are not acceptable.

2. Treating processes, material conditions, plant equipment, and other pertinent requirements shall conform to AWPA Specifications C1 and C2 for specific kind of lumber and type of preservative to be used. Retention shall be as required for intended use.

3. All treated lumber shall bear the mark of a code recognized third party agency such as the AWPA.

D. PLYWOOD:

Grade: CDX or Cyme exterior Grade. Description: 5/8" thick

E. WOOD SIDING:

1. T 111 or approved equal.

2.2 MECHANICAL FASTENERS:

A. WOOD TO STEEL:

1. Acceptable Manufacturers:
   a. Roofgrip screw with Climaseal coating; plastic disc - Buildex Div. of ITW, Itasca, IL.
   b. Dekfast screw with Sentri coating: plastic disc – Construction Fasteners, Inc., Wyomissing, PA.

c. Fabco Fastening Systems, West Newton, PA: Insul-Fixx screw with Fabcote coating; plastic plate, Plate-Fixx screw with Fabcote coat; plastic disc.
d. Kwik-Deck screw with Oxyseal coating; plastic disc - Atlas Bolt & Screw Div., Trans Union Fastener Corp., Ashland, OH.
e. Olympic #12-11 Standard Steel Deck Screw or #14-10 Heavy Duty All Purpose Screw with CR-10 coating; three inch diameter plastic - Olympic Manufacturing Group, Inc., Agawam, MA.
f. Glasfast (plastic disc) - Owens-Corning Fiberglas Corp., Toledo, OH.
g. Perma Fastener screw with permaseal coating; plastic plate - International Permalite, Inc., Oak Brook, IL.

2. Screw Length: Sufficient to engage steel, wood deck 1 inch.

B. WOOD TO WOOD:

1. Type: Galvanized, common, annular ring nail. Length: Sufficient to penetrate underlay blocking 1-1/4 inches.

2. Acceptable Manufacturers:

a. Hillwood Manufacturing Co., Cleveland, OH.
b. Independent Nail, Inc., Bridgewater, MA.
c. W.H. Maze Co., Peru, IL.
d. National Nail Corp., Grand Rapids, MI.

C. WOOD TO MASONRY:

1. Acceptable Manufacturers:

a. Tapcon 1/4" diameter, Phillips pan head anchor - Buildex Div. of ITW, Itasca, IL.
b. Confas - Construction Fasteners, Inc., Wyomissing, PA.
c. Con-fixx - Fabco Fastening Systems, West Newton, PA.
d. #14-10 Heavy Duty all Purpose Screw – Olympic Manufacturing Group, Inc., Agawam, MA.
e. Tru-Fast fastener (stainless steel) - The Tru-Fast Corp., Bryan, OH.

2. Length: Sufficient to provide 1-1/2 inch embedment.

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D. WOOD TO HOLLOW MASONRY:

1. Acceptable Manufacturers:

a. Sleeve Anchor by Hilti Fastening Systems, Tulsa, OK.
b. Rawly Hollow Masonry Anchor by the Rawlplug Co., Inc., New Rochelle, NY.

2. Length: As recommended by manufacturer

PART 3 - EXECUTION

3.1 CARPENTRY:

A. At roof edge to receive metal fascia, around all roof top penetration perimeters, and under any flashing component that is to have a roof flange mechanically fastened to roofing substrate; mechanically attach wood blocking. Blocking thickness: Equal to common 1 x 4", 1 x 6" 2x4", 2x6", 2x8", 2x10", 2x12".

B. Fasteners shall be installed in two rows staggered. Spacing in any one row shall not exceed 24 inches. Within eight feet of outside corners, spacing shall not exceed twelve inches in any one row.

C. Where required, offset blocking layers twelve inches, weave corners.

D. When preservative treated wood is cut, the cut end shall be treated in accordance with AWPA Specification M4.

E. Lumber shall be accurately cut to the work requirements and shall be well fastened.

F. Bolted fastenings shall have washers of adequate size under both heads and nuts. Nails shall be of correct size and quantity for proper fastening. Oversized nails that will result in splitting shall not be used. All fasteners shall be galvanized per ASTM A 153.

END OF SECTION 06110

SECTION 07550 - MODIFIED BITUMINOUS 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. Roof Sections C: General scope of work but not limited to;

1. Includes removal and disposal of existing roofing system(s), insulation board, gutters, flashings, copings, skirt flashing etc. for a complete prepared roof surface.

2. Includes one hundred (100) square feet of decking replacement included in the base bid price. A per square foot price will be inserted into the bid form for anything needed and approved by the district over 100 square feet.

3. Remove and replace all existing roof drains. Install Zurn or equal roof drain and overflow drain combo. Properly flash into the new roofing system.

4. Installation of a complete SBS cold applied roofing system including insulation board, tapered insulation crickets, tapered insulation where existing, etc. with all applicable items and details for a complete warrantable roofing assembly.

5. Raise all roof curbs to a minimum of 8” above the finished roof height.

6. Install walkway pads at all service sides of all mechanical equipment and roof hatch.

7. Install all new 4lb lead flashings at pipe penetrations with counter flashing collar flared out, caulked, and banded. Install factory cap on all waste stacks or open top penetrations.

8. Install 24 gauge galvanized surface mount with butyl tape behind and sealed with Tuff Stuff Urethane sealant.

9. Install Pyramic Acrylic Coating per specification at a total rate of 4 gallons per square in two coats.

10. Install one layer of breathable underlayment over the wall above the surface mount counter flashing.

11. Install ¾” hat channels spaced 3’ on center.

12. Install metal panels per approved manufactures details over the entire wall surface area.

B. Related Work Specified Elsewhere:

1. Section 06: Rough Carpentry.

2. Section 07563: Restoration Acrylic.

3. Section 07590: Re Roofing Preparation

4. Section 09910: Painting

1.3 REFERENCES

A. American Society of Civil Engineers (ASCE):

1. ASCE 7-10, Minimum Design Loads for Buildings and Other Structures.

B. American Society for Testing and Materials (ASTM):

1. ASTM D41 Standard Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing.

2. ASTM D312 Standard Specification for Asphalt Used in Roofing.

3. ASTM D451 Standard Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products.

4. ASTM D1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.

5. ASTM D1227 Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.

6. ASTM D1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.

7. ASTM D2178 Standard Specification for Asphalt Glass Felt Used as a Protective Coating for Roofing.

8. ASTM D2822 Standard Specification for Asphalt Roof Cement.

9. ASTM D4601 Standard Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing.

10. ASTM D5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

11. ASTM D6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.

12. ASTM D6163 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.

13. ASTM E108 Standard Test Methods for Fire Test of Roof Coverings.

B. Factory Mutual Research (FM):

1. Roof Assembly Classifications.

C. National Roofing Contractors Association (NRCA):

1. Roofing and Waterproofing Manual.

D. Underwriters Laboratories, Inc. (UL):

1. Fire Hazard Classifications.

E. Warnock Hersey (WH):

1. Fire Hazard Classifications.

F. American National Standards Institute and Single Ply Roofing Institute (ANSI/SPRI)

1. ANSI/SPRI ES-1 Testing and Certification Listing of Shop Fabricated Edge Metal. RE-1, RE-2, RE-3.

2. ANSI/SPI FX-1 2001 Standard Field Testing Procedure for determining the withdrawal resistance of roofing fasteners.

1.4 SUBMITTALS FOR REVIEW

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.

B. Samples: Submit two (2) samples of the following:

1. Rosin Sheet

2. Base Sheet

3. Ply Sheet Membrane

4. SBS Modified Surface Membrane

5. Insulation Board

6. Cover Board

7. Mechanical Fastener – All Types

C. 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.

D. Any material submitted as equal to the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the

installation is to take place. This report shall show that the submitted equal meets the Design and Performance criteria in this specification. Substitution requests submitted without licensed engineer approval will be rejected for non-conformance.

E. LEED Certification: Provide a roof system to achieve or aid in the qualification of points satisfying;

1. SSC7.2 - Heat Island Effect

2. MRC4 - Recycled Content

3. MRC6 - Rapidly Renewable Materials

1.5 SUBMITTALS FOR INFORMATION

A. Manufacturer's Installation Instructions: Submit installation instructions and recommendations indicating special precautions required for installing the membrane.

B. Manufacturer's Certificate: Certify that roof system furnished is approved by Factory Mutual, Underwriters Laboratories, Warnock Hersey or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.

C. Manufacturer's Certificate: Certify 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.

D. Manufacturer's Certificate: Submit a certified copy of the roofing manufacturer's ISO 9001 compliance certificate.

E. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147.

F. Wind uplift calculations per California Building Code (CBC), Chapter 15, Section 1504, ASCE 7-10 reviewed by the roofing systems manufacturer’s California licensed structural engineer.

G. Written certification from the roofing system manufacturer certifying the applicator is currently authorized for the installation of the specified roof system to achieve the required warranty term.

H. Design Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7-10, Method 2 for Components and Cladding, professional engineer employed by the system manufacturer as a full-time staff engineer. In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article of this specification.

I. Qualification data for firms and individuals identified in Quality Assurance Article below.

J. Perform in field fastener pull testing and provide results for review and acceptance. Supply letter from manufacturer stating securement materials, methods, and spacing required to achieve the required uplift resistance.

1.6 CONTRACT CLOSEOUT SUBMITTALS

A. General: Comply with Requirements of Division 01 Section - Closeout Submittals.

B. Special Project Warranty: Provide specified warranty for the Project, executed by the authorized agent of the Manufacturer.

C. Roofing Maintenance Instructions. Provide a manual of manufacturer's recommendations for maintenance of installed roofing systems.

D. Insurance Certification: 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.

E. Demonstration and Training Schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed roofing work. Refer to Part 3 for additional requirements.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with not less than 12 years documented experience and have ISO 9001 certification.

B. Installer Qualifications: Company specializing in modified bituminous roofing installation with not less than 5 years experience and authorized by roofing system manufacturer as qualified to install manufacturer's roofing materials.

C. 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.

D. Maintain a copy of the Contract Documents in the possession of the Supervisor/Foreman and on the roof at all times.

E. Source Limitations: All major roof components to be supplied by warranty manufacturer. Major components to include: base ply, plies, adhesives, mastics, modified membranes, reinforcing membranes and reflective coatings.

1. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

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

1.8 PRE-INSTALLATION CONFERENCE

A. Pre-Installation Roofing Conference: Convene a pre-roofing conference approximately two (2) weeks before scheduled commencement of modified bituminous roofing system installation and associated work.

B. Require attendance of installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing that must precede or follow roofing work (including mechanical work if any), Architect, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, testing agencies and governing authorities. Objectives of conference 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 (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by others.

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 required submittals both completed and yet to be completed.

6. Review and finalize construction schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.

7. Review required inspection, testing, certifying and material usage accounting procedures.

8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not mandatory requirement).

9. Record discussion of conference including decisions and agreements (or disagreements) reached and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

10. Review notification procedures for weather or non-working days.

C. The Owner's Representative will designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.

D. The intent of the conference is to resolve issues affecting the installation and performance of roofing work. Do not proceed with roofing work until such issues are resolved the

satisfaction of to the Owner and Architect of Record. This shall not be construed as interference with the progress of Work on the part of the Owner or Architect of Record.

1.9 DELIVERY, STORAGE AND HANDLING

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

B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to prevent moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Remove factory plastic wrappings to avoid condensation accumulating materials. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).

C. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.

D. Secure all material and equipment on the job site. If any material or equipment is stored on the roof, assure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the Contractor's actions will be the sole responsibility of the Contractor, and the deck will be repaired or replaced at his expense.

1.10 MANUFACTURER'S INSPECTIONS

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

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

2. Provide job site inspections two (2) days per week and provide electronic documentation of progress, problems, & solutions to Architect and Owner sent on a weekly basis throughout the course of construction.

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

4. 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.

1.11 PROJECT CONDITIONS

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

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

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

D. All slopes greater than 2:12 require back-nailing to prevent slippage of the ply sheets. Use ring or spiral-shank one (1) inch cap nails, or screws and plates at a rate of one (1) fastener per ply (including the membrane) at each insulation stop. Place insulation stops at 16 ft o.c. for slopes less than 3:12 and four (4) ft o.c. for slopes greater than 3:12. On non-insulated systems, nail each ply directly into the deck at the rate specified above. When slope exceeds 2:12, install all plies parallel to the slope (strapping) to facilitate backnailing. Install four (4) additional fasteners at the upper edge of the membrane when strapping the plies.

1.12 SEQUENCING AND SCHEDULING

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

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

C. Provide manufacturer approved water cut offs at the end of the days application. Cut out and discard these materials prior to re-starting work.

1.13 WARRANTY

A. Upon completion of installation, and acceptance by the Owner and Architect, the Manufacturer will supply to the Owner a thirty (30) year No Dollar Limit (NDL) watertight warranty.

B. Installer will submit a two (2) year warranty to the membrane manufacturer with a copy directly to Owner.

C. Warranty shall commence on date of substantial completion or final payment, whichever is agreed by contract.

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

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

    B. General rooftop housekeeping and clean-up, subject to limits, but generally including removal of incidental debris.

E. Leak responsibilities from the manufacturer to the owner in the event a roof leak should occur.

    A. Provide a toll free (800) number for owner to call in leak report. Number will be monitored (24) hours per day (365) days per year.

    B. Provide a response to owner within (24) hours of when call is made.

C. Provide a repair crew, at the building site, within two (2) business days of the call.

D. Provide follow up inspection to ensure repairs were completed properly.

1.14 DESIGN AND PERFORMANCE CRITERIA

A. Uniform Wind Uplift Load Capacity

1. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria. Attachment shall be installed exactly as given in Part 3.

a. Design Code: ASCE 7-10, Method 2 for Components and Cladding.

PART 2 — PRODUCTS

2.1 PRODUCTS, GENERAL

A. 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. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

B. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements and Division 01 provisions.

1. Proposals shall be accompanied by a copy of the manufacturer's standard specification section. That specification section shall be signed and sealed by a professional engineer licensed in the state in which the installation is to take place. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.

2. Include a list of three (3) projects of similar type and extent, located within a one hundred mile radius from the location of the project. In addition, the three projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.

3. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.

4. The Architect and Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 ACCEPTABLE MANUFACTURERS

A. The system shall be engineered and manufactured by The Garland Company, without substitution, to maintain existing roofing warranty.

The Garland Company
Telephone: (800) 762-8225 ext. 720
Website: www.garlandco.com

Local Representative: Richard Jones

2.3 DESCRIPTION

A. Modified bituminous sheet roofing work including but not limited to:

1. Install one layer Red Rosin over entire roof substrate prior to installation of insulation board.

2. Install flat and/or tapered insulation board as specified.

3. Cold Applied Adhesive: V.O.C. compliant, SBS, non-asbestos containing cold applied adhesive for roof slopes up to 3:12.

4. Install one layer of Stressbase 80 SBS 20% pre consumer recycled content, LEED 10% MR 4 recycled content, UL Environment Certified, modified ply and flashing membrane in cold applied adhesive.

5. Install one layer modified membrane & flashing membrane: (Stressply Plus FR Mineral) - Environmentally Friendly; 145 mil SBS (Styrene-Butylene-Styrene) mineral surfaced, rubber modified roofing membrane incorporating recycled rubber, fire retardant characteristics and reinforced with a fiberglass and polyester composite scrim. Recycled content 6 percent, LEED MR 4 recycled content, UL Certified. Install in adhesive.

6. Surfacing: Pyramic; Title 24, CRRC, & Energy Star approved white acrylic coating ASTM G26

7. LEED Certification: Provide a roof system to achieve or aid in the qualification of points satisfying;

    a. SSC7.2 - Heat Island Effect

    b. MRC4 - Recycled Content

2.4 BITUMINOUS MATERIALS

A. Asphalt Primer: V.O.C. compliant, ASTM D41.

B. Asphalt Roofing Mastic: V.O.C. compliant, ASTM D4586

C. Cold Applied Modified Membrane Adhesive: VOC compliant: Performance Requirements:

1. Non-Volatile Content ASTM D4479 78%

2. Density @ 77 degrees ASTM D1475 9 lbs./gallon

3. Viscosity Stormer 800-1200 grams

4. Flash Point ASTM D93 100°F min. (38°C)

5. Slope: up to 3:12

6. VOC: 250 g/l max

D. Cold Applied Flashing Adhesive. VOC: Performance Requirements:

1. Non-Volatile Content ASTM D4479 70%

2. Density ASTM D1475 8.6 lbs./gal.

3. Flash Point ASTM D93 100°F (38°C)

4. VOC: 300 g/l

2.5 SHEET MATERIALS

A. Red Rosin Paper: 36” wide x 167’ long, 500 square feet per roll.

B. Base & Base Flashing Ply (StressBase 80 Sheet): Fiberglass scrim with the following minimum performance requirements according to ASTM D5147. Properties (Finished Membrane):

1. Tensile Strength

a. 2 in/min. @ 73.4 ± 3.6°F MD 100 lbf/in CMD 100 lbf/in

b. 50mm/min. @ 23 ± 3°C MD 39 kN/m CMD 39 kN/m

2. Tear Strength

a. 2 in/min. @ 73.4 ± 3.6°F MD 110 lbf CMD 110 lbf

b. 50mm/min. @ 23 ± 3°C MD 1335 N CMD 1335 N

3. Elongation at Maximum Tensile

a. 2 in/min. @ 73.4 ± 3.6°F MD 2.5 % CMD 2.5 %

4. Low Temperature Flexibility (ASTM D5147): Passes -20°F (-28.8°C)

D. Modified Membrane & Flashing Ply Properties: Stressply Plus FR Mineral; ASTM D6163, Type III Grade G per the minimum performance requirements of ASTM D5147.

1. Tensile Strength

a. 2 in/min. @ 73.4 ± 3.6°F MD 310 lbf/in CMD 310 lbf/in

b. 50 mm/min. @ 23 ± 3°C MD 54.2 kN/m CMD 54.2 kN/m

2. Tear Strength

a. 2 in/min. @ 73.4 ± 3.6°F MD 500 lbf CMD 500 lbf

b. 50 mm/min. @ 23 ± 3°C MD 2224 N CMD 2224 N

3. Elongation at Maximum Tensile

a. 2 in/min. @ 73.4 ± 3.6°F MD 3.5% CMD 3.5%

b. 50 mm/min. @ 23 ± 3°C MD 3.5% CMD 3.5%

4. Low Temperature Flexibility (ASTM D5147): Passes -30°F (-34°C)

2.6 SURFACINGS

A. White Elastomeric Roof Coating: Pyramic; Energy Star, CRCC, & Title 24 approved white acrylic roof coating: ASTM D4798

1. Weight/Gallon 12 lbs./gal. (1.44 g/cm3)

2. Non-Volatile % (ASTM D 1644) 66 min

3. Reflectance 81%

4. Emmitance 89%

5. SRI 101

B. White Urethane Roof Coating: WhiteKnight Plus WC; Energy Star, CRCC, & Title 24 approved white urethane roof coating: ASTM D4798

1. Weight/Gallon 10.4 lbs./gal.

2. Non-Volatile (ASTM D 75) Typical 83%

3. Reflectance 83%

4. Emmitance 89%

5. SRI 104

2.7 RELATED MATERIALS

A. Roof Insulation base layer: (ASTM C 1289) polyisocyanurate rigid insulation board; minimum thickness (N/A, unless needed to match existing condition), square edges. All sizes thicker than 2” are to be installed in multiple layers and have all edges stagger to the maximum dimension possible.

B. Roof Insulation top layer: Knight – Celotex Structodeck or equal, (ASTM C 208) High Density ½” six side primed wood fiber board 4’ x 8’.

C. Tapered Insulation Tapered insulation board to be used as required for tapered insulation system with a minimum ½” per foot slope. Provide sufficient crickets or saddles to ensure

water does not pond on the new roof installation. Submit taper plan to district for review and approval prior to start of project. Install taper insulation where existing.

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

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FMG 4470, designed for fastening roofing insulation to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

F. Metal Discs: Flat discs or caps of zinc-coated sheet metal not lighter than twenty eight (28) gauge and not less than three (3) inch in diameter. Form discs to prevent dishing. Bell or cup shaped caps are not acceptable.

G. Termination bar should be extruded aluminum .125 x 1"

H. Walkway Pads: Factory formed asphalt, APOC or equal. Install per approved plans.

1. Install ¾" thick 3'x 4' walk pad 4" apart in a uniform pattern around all mechanical equipment and at the base of all roof access points.

I. Walkway Pad Adhesive: Adhesive used to adhere approved walk way pads as recommended and furnished by the membrane manufacturer

1. Walkway pads to be installed after final roof coating.

J. Urethane Sealant: One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints.

1. Tensile Strength (ASTM D412): 250 psi
2. Elongation (ASM D412): 950%
3. Hardness, Shore A (ASTM C920): 35
4. Adhesion-in-Peel (ASTM C920): 30 pli

K. Glass Fiber Cant: Continuous triangular cross Section made of inorganic fibrous glass used as a cant strip as recommended and furnished by the membrane manufacturer.

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

M. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled. All plumbing stacks are to have the factory lead cap installed. Caulking and banding will not be accepted on open top penetrations. On electrical or flashings which a factory cap can't be used a lead umbrella flashing is to be installed, banded, flared out, and sealed with urethane sealant.

PART 3 — EXECUTION

3.1 EXECUTION, GENERAL

A. Comply with all requirements and manufacturer recommendations.

3.2 EXAMINATION

A. Verify that deck surfaces and project conditions are ready to receive work of this section.

B. Verify that deck is supported and secured to structural members.

C. Verify that deck is clean and smooth, free of depressions, projections or ripples, and is properly sloped to drains.

D. Verify that adjacent roof substrate components do not vary more than 1/4 inch in height.

E. Verify that deck surfaces are dry.

F. Confirm that moisture content does not exceed twelve (12) percent by moisture meter tests.

G. Verify that openings, curbs, pipes, conduit, sleeves, ducts, and other items which penetrate the roof are set solidly, and that reglets are set in place.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.

B. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.

C. Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of the modified bituminous roofing system.

D. Coordinate installation of roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut-offs at end of each day's work to cover exposed ply sheets and insulation with two (2) plies of #15 organic roofing felt set in full mopping’s of bitumen and with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work.

E. Substrate Joint Penetrations: Prevent cold process adhesive from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

F. Apply roofing materials as specified by manufacturer's instructions.

1. Keep roofing materials dry before and during application.

2. Do not permit phased construction.

3. Complete application of roofing plies, modified sheet and flashing in a continuous operation.

4. Begin and apply only as much roofing in one day as can be completed that same day.

3.4 INSULATION UNDERLAYMENT INSTALLATION

A. Install one layer of Red Rosin sheet over entire roof substrate prior to installation of insulation board.

B. Lap rosin sheet ends eight (8) inches (203mm). Stagger end laps twelve (12) inches (304mm) minimum.

3.5 INSULATION INSTALLATION

A. Install all insulation and roofing in strict accordance with manufacturer's current recommendations and reference standards, as specified, and as required for ASCE7-10.

B. Mechanically attach base layer of ridged insulation using fasteners at the rate of 11-17-17.

C. Install boards with long joints continuous and running in a direction parallel to the roof decking. Short joints should be staggered. All joints shall be butted tightly together.

D. Install top layer of insulation with ALL joints staggered into a full width application of insulation adhesive. Maximum board size shall be 4' x 8'. ALL joints must be staggered by a minimum of 1'.

E. Tapered insulation system shall be installed as detailed on plans and as required to provide positive drainage at all roof areas. Starting at the drain sumps, install pre-formed tapered insulation in a full width application of insulation adhesive. Panels shall be installed with no gaps larger than ¼".

3.6 BASE PLY INSTALLATION

A. Install (1) one base ply in two (2) gallons per square of cold applied membrane adhesive, shingled uniformly to achieve one ply throughout over the prepared substrate. Shingle in proper direction to shed water on each large area of roofing. Prior to installation, cut sheets into 18' lengths and allow to them to relax.

B. Lap ply sheet ends eight inches. Stagger end laps twelve inches minimum.

C. Extend plies two inches beyond top edges of cants at wall and projection bases.

D. Install one (1) base ply to all perimeter and projection details.

E. Allow the one (1) ply of base sheet to cure at least thirty minutes before installing the modified membrane. However, the modified membrane must be installed the same day as the base plies.

F. Lightly broom sheet to ensure proper adhesion.

3.7 MODIFIED MEMBRANE APPLICATION

A. Solidly bonded to the base layer with specified cold adhesive at the rate of two (2) gallons per 100 square feet.

B. The roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.

C. Subsequent rolls of modified shall be installed across the roof as above with a minimum of four (4) side laps and eight (8) end laps. The end laps shall be staggered a minimum of (3). The modified membrane shall be laid in the same direction as the underlayers but the laps shall not coincide with the laps of the base layers.

D. Extend membrane two (2) beyond top edge of all cants in full moppings of the cold adhesive as shown on the drawings.

E. Lightly broom sheet to ensure proper adhesion.

3.8 FLASHING MEMBRANE INSTALLATION

A. Seal all curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or under the flashing membrane.

B. Prepare all walls, penetrations, expansion joints and where shown on the drawings to be flashed with asphalt primer at the rate of one hundred (100) square feet per gallon. Allow primer to dry tack free.

C. Use the modified membrane as the flashing membrane. Adhere to the underlying base flashing ply with specified cold adhesive in these specifications. Nail off at a minimum of eight (8) inches (203mm) o.c. from the finished roof at all vertical surfaces.

D. Solidly adhere the entire sheet of flashing membrane to the substrate. Tops of all flashings that are not run up and over curb shall be secured through termination bar 6 inches (152mm) and sealed at top.

E. Seal all vertical laps of flashing membrane with a three-course application of trowel-grade mastic and fiberglass mesh.

F. Coordinate counter flashing, cap flashings, expansion joints and similar work with modified bitumen roofing work [as specified in other sections].

G. Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work as specified in other sections. When using mineralized cap sheet all stripping shall be installed prior to cap sheet installation.

3.9 FLASHING MEMBRANE INSTALLATION

A. Scupper Through Wall [Detail No. MBC-15]:

1. Inspect the nailer to assure proper attachment and configuration.

2. Run one ply over nailer, into scupper hole and up flashing as in typical wall flashing detail. Assure coverage of all wood nailers.

3. Install a scupper box in a ¼ inch (6mm) bed of mastic. Assure all box seams are soldered and have a minimum four (4) inch (101mm) flange. Make sure all corners are closed and soldered. Prime scupper at a rate of 100 square feet per gallon and allow to dry.

4. Fasten flange of scupper box every three (3) inches (76mm) o.c. staggered.

5. Strip in flange of scupper box with base flashing ply covering entire area with six (6) inch (152mm) overlap on to the field of the roof and wall flashing.

6. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all seams.

B. Scupper Through Wall (Overflow) [Detail No. MBC-16]:

1. Inspect the nailer to assure proper attachment and configuration.

2. Run one ply over nailer up the overflow, into the scupper hole and up flashing as in typical wall flashing detail. Assure coverage of all wood nailers.

3. Install scupper box in a ¼ inch (6mm) bed of mastic. Assure all box seams are soldered and have a minimum four (4) inch (101mm) flange. Make sure all corners are closed and soldered. Prime scupper at a rate of 100 square feet per gallon and allow to dry.

4. Fasten flange of scupper box every three (3) inches (76mm) o.c. staggered.

5. Strip in flange scupper box with base flashing ply covering entire area with six (6) inch (152mm) overlap on to the field of the roof and wall flashing.

6. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all seams.

C. Coping Cap:

1. Minimum flashing height is eight (8) inches (203mm) above finished roof height. Maximum flashing height is 24 inches. Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering entire wall and wrapped over top of wall and down face with six (6) inches (152mm) on to field of the roof and set in cold asphalt. Nail membrane at eight (8) inches (203mm) o.c.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all seams and allow to cure.

5. Install coping cap per manufacturer's recommendations.

D. Surface Mounted Counterflashing [Detail No. MBC-22]:

1. Minimum flashing height is eight (8) inches (203mm) above finished roof height. Maximum flashing height is 24 inches. Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering wall set in bitumen with six (6) inches (152mm) on to field of the roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Apply butyl tape to wall behind flashing. Secure termination bar through flashing, butyl tape and into wall. Alternatively use caulk to replace the butyl tape.

6. Secure counterflashing set on butyl tape above flashing at eight (8) inches (203mm) o.c. and caulk top of counterflashing.

E. Equipment Support [Detail No. MBC-32]:

1. Minimum curb height is eight (8) inches (203mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering curb set in bitumen with six (6) inches (152mm) on to field of the roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Attach top of membrane to top of curb and nail at eight (8) inches (203mm) o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Install pre-manufactured cover. Fasten sides at 24 inches (609mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with butyl tape between metal covers.

6. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

F. Curb Detail/Air Handling Station [Detail No. MBC-33]:

1. Minimum curb height is eight (8) inches (203mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering curb set in bitumen with six (6) inches (152mm) on to field of the roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Install pre-manufactured counterflashing with fasteners and neoprene washers or per manufacturer's recommendations.

6. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

G. Skylight [Detail No. MBC-34]:

1. Minimum curb height is eight (8) inches (203mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering curb set in bitumen with six (6) inches (152mm) on to field of the roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches (228mm) on to the field of the roof. Attach top of membrane to top of wood nailer and apply a three-course application of mastic and mesh. Allow to cure and aluminize.

5. Install pre-manufactured lens and fasten flashing sides at eight (8) inches (203mm) o.c. with fasteners and neoprene washers.

H. Pre-manufactured Curb For Equipment Support [Detail No. MBC-35]:

1. Minimum curb height is eight (8) inches (203mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.

2. Run all field plies over cant of the pre-manufactured equipment support a minimum of two (2) inches.

3. Install base flashing ply covering pre-manufactured curb with six (6) inches (152mm) on to field of the roof.

4. Install a second ply of modified flashing ply installed over the base flashing ply, nine (9) inches (228mm) on to field of the roof. Attach top of membrane to top of

wood curb and nail at eight (8) inches (203mm) o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Install pre-manufactured cover. Fasten sides at 24 inches (609mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with butyl tape between metal covers.

6. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

I. Exhaust Fan [Detail No. MBC-36]:

1. Minimum curb height is eight (8) inches (203mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering curb with six (6) inches (152mm) on to field of the roof.

4. Install a second ply of modified flashing ply installed over the base flashing ply, nine (9) inches (228mm) on to field of the roof. Attach top of membrane to top of wood curb and nail at eight (8) inches (203mm) o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Install metal exhaust fan over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer's recommendation.

J. Passive Vent/Air Intake [Detail No. MBC-37]:

1. Minimum curb height is eight (8) inches (203mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all plies over cant a minimum of two (2) inches (50mm).

3. Install base flashing ply covering curb with six (6) inches (152mm) on to the field of the roof.

4. Install a second ply of modified flashing ply installed over the base flashing ply, nine (9) inches (228mm)on to field of the roof. Attach top of membrane to top of wood curb and nail at eight (8) inches (203mm) o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Install passive vent/air intake over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer's recommendations.

K. Roof Drain [Detail No. MBC-41]:

1. Plug drain to prevent debris from entering plumbing.

2. Taper insulation to drain minimum of 24 inches (609mm) from center of drain.

3. Install two (2) base flashing plies (40 inch square minimum) in bitumen.

4. Set lead/copper flashing (30 inch square minimum) in ¼ inch (6mm) bed of mastic. Run lead/copper into drain a minimum of two (2) inches (50mm). Prime lead/copper at a rate of 100 square feet per gallon and allow to dry.

5. Run roof system plies over drain. Cut out plies inside drain bowl.

6. Install modified membrane (48 inch square minimum) in bitumen.

7. Install clamping ring and assure that all plies are under the clamping ring.

8. Remove drain plug and install strainer.

L. Plumbing Stack [Detail No. MBC-50]:

1. Minimum stack height is 12 inches (609mm).

2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.

3. Prime flange of new sleeve. Install properly sized sleeves set in ¼ inch (6mm) bed of roof cement.

4. Install base flashing ply in bitumen.

5. Install membrane in bitumen.

6. Caulk the intersection of the membrane with elastomeric sealant.

7. Turn sleeve a minimum of one (1) inch (25mm) down inside of stack.

M. Heat Stack [Detail No. MBC-51]:

1. Minimum stack height is 12 inches (609mm).

2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.

3. Prime flange of new sleeve. Install properly sized sleeves set in ¼ inch (6mm) bed of roof cement.

4. Install base flashing ply in bitumen.

5. Install modified membrane in bitumen.

6. Caulk the intersection of the membrane with elastomeric sealant.

7. Install new collar over cape. Weld collar or install stainless steel draw brand.

N. Passive Vent/Air Intake [Detail No. MBH-37]:

1. Minimum curb height is eight (8) inches. Prime vertical at a rate of one hundred (100) square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all plies over cant a minimum of two (2) inches.

3. Install base flashing ply covering curb with six (6) inches on to the field of the roof.

4. Install a second ply of modified flashing ply installed over the base flashing ply, nine (9) inches on to field of the roof. Attach top of membrane to top of wood curb and nail at eight (8) inches o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure.

5. Install passive vent/air intake over the wood nailers and flashing to act as counterflashing. Fasten per manufacturers recommendations.

3.10 APPLICATION OF SURFACING

A. Prior to installation of surface, obtain approval from manufacturer as to work completed. On average, at least 30 days are required prior to final surfacing.

B. Reflective Coating:

1. Allow all cold applied mastics and coating to properly dry and cure before coating application.

2. Paint all exposed roofing with manufacturer's base coat Acrylic Coating installed at a rate of one and a half (1.5) gallons per square, back roll entire installation required.

3. Paint all cricket waterways, drain sumps, behind roof curbs and areas where water may collect with manufacturers Energy Star top coat Urethane Coating installed a rate of one and a half (1.5) gallons per square, back roll of entire installation required.

4. Paint all exposed roofing (except for areas noted above in #3) with manufacturer's Energy Star top coat Acrylic Coating installed at a rate of one and a half (1.5) gallons per square, back roll entire installation required.

3.11 FIELD QUALITY CONTROL

A. Perform field inspection and as required.

B. Correct defects or irregularities discovered during field inspection.

C. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system. A copy of the specification should also be on site at all times.

3.12 CLEANING

A. Remove bitumen adhesive drippings from all walls, windows, floors, ladders and finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning instructions and conform to their instructions.

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

3.13 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during roofing procedures. Comply with requirements of authorities having jurisdiction.

3.14 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 thermo graphic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermo graphic 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.

3.15 DEMONSTRATION AND TRAINING

A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:

1. Roof troubleshooting procedures.

2. Notification procedures for reporting leaks or other apparent roofing problems.

3. Roofing maintenance.

4. The Owner's obligations for maintaining the roofing warranty in effect and force.

5. The Manufacturer's obligations for maintaining the roofing warranty in effect and force.

3.16 OWNER SUPPLIED MATERIALS

A. Contractor must submit all quantities of owner supplied materials; per the list supplied below required to complete the project per specification section 07 52 00 with their bid.

1. Contractor must provide all labor and incidental materials to install owner supplied materials as part of their bid.

2. All materials not specifically included in the owner supplied materials section will be the responsibility of the contractor to provide and install in compliance with section 07 52 00.

3. Contractor must provide an accurate list of owner supplied materials to the Owner, overages will be returned to the owner and under estimated quantities will be the full responsibility of the contractor to supply and install in full compliance with this section.

4. Freight charges of owner supplied materials will be the responsibility of the owner. Contractor must take delivery of materials, properly protect, cover and store at jobsite.

5. Contractor must be able to provide certification in writing from roof system manufacturer that the contractor is approved to install the specified roof system and provide all warranty requirements of section 07 52 00.

B. Materials specifically provided by the Owner;

- Stressply Plus FR Mineral surface sheet (75 sq ft per roll)
- Stressbase 80 Ply Sheet (150 sq ft per roll)
- Silver Flash Mastic (5 gal pail)
- Garla Flex Mastic (10.1 oz tube)
- Tuff Stuff Urethane Sealant (10.1 oz tube)
- Garla-Prime VOC (5 gal pail)
- Garmesh (150’ x 6”)
- Pyramic Acrylic Coating, Base Coat (55 gal drum)
- Pyramic Acrylic Coating, Top Coat (55 gal drum)
- WhiteKnight Plus WC, Urethane Top Coat (5 gallon pail)
- Weatherking Plus WC (55 gal drum)

- Weatherking Flashing Adhesive (5 gallon pail)
- Freight to jobsite

END OF SECTION 07550

SECTION 07563 - ROOFING RESTORATION – ACRYLIC

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. **Roof Sections A & B:** General scope of work but not limited to;

1. Tie in all new penetrations to the existing roofing system per manufacturers approved details.

2. Remove the existing roof coating from the existing roof surface at the tie in area of each penetration prior to beginning the roofing work. Prime the tie in area with Garland Prime VOC.

3. Infill wood fiber insulation board to match the existing roof height and mechanically attach with screws and plates.

4. Install one field ply of Stressbase 80 (from top of cant strip to 18” into the field of the roof) and one field ply of Stressply Plus FR Mineral (from top of cant strip 24” into the field of the roof) in Weatherking Flashing Adhesive.

5. Install one base flashing ply of Stressbase 80 (from top of roof curb to 12” into the field of the roof) and one base flashing ply of Stressply Plus FR Mineral (from top of roof curb 18” into the field of the roof) in Weatherking Flashing Adhesive.

6. Fasten at 12” on center with approved fastener.

7. Install Silverflash Mastic & Garmesh at all corners and base flashing laps.

8. Preparation of the entire existing roof system for restoration.

9. Pressure wash existing BUR roofing system and allow to dry for 24 hours prior to the application of the base coat.

10. Cut existing roofing back from gravel stop edge 2”. Install garla prime voc 6” wide and allow to dry. Install one layer of silverflash mastic, apply one layer of garmesh 6” reinforcement, apply one more layer of silverflash mastic, allow to cure 72 hours prior to the application of the base coat. Three course all base flashing laps at roof areas with parapet walls.

11. Repair all loose membrane at edge flashing and through field along with all details.

12. Three course all blisters and repair all details per specification.

13. Install Pyramic Acrylic Coating per specification at a total rate of 4 gallons per square in two coats at all built up roof areas.

14. In areas of ponding water install White Knight Plus WC at 2 gallons per square as the top coat product in lieu of Pyramic.

B. Related Sections:

1. Section 07550 – Modified Bituminous Membrane Roofing

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM D1079, Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.

B. National Roofing Contractors Association (NRCA):

1. Roofing and Waterproofing Manual.

1.4 MATERIALS OWNERSHIP

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

1.5 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.

B. Documentation of Existing Conditions: Document existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces that might be misconstrued as having been damaged by re-coating operations. Submit before work begins. Use high-resolution digital photographs or video tape supplemented by written commentary for preparing reports.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning membrane roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Installer: Company specializing in roof restoration with a minimum 5 years experience and certified by roofing system manufacturer as qualified to install manufacturer's roofing materials.

C. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work and at any time roofing work is in progress. Maintain proper supervision of workmen. Maintain a copy of the specifications in the possession of the Supervisor/Foremen and on the Site at all times.

D. Insurance Certification: 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.

1.7 PRE-INSTALLATION CONFERENCE

A. Preliminary Re-roofing Conference: Convene a pre-roofing conference approximately two (2) weeks before scheduled commencement of reproofing installation and associated work.

B. Require attendance of installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing which must precede or follow roofing work (including mechanical work if any), Architect, Owner, roofing system manufacturer s representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, testing agencies and governing authorities. Objectives of conference include:

1. Review foreseeable methods and procedures related to re-roofing work.

2. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by others.

3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.

4. Review re-roofing system requirements (drawings, specifications and other contract documents).

5. Review required submittals both completed and yet to be completed.

6. Review and finalize construction schedule related to re-roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.

7. Review required inspection, testing, certifying and material usage accounting procedures.

8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not mandatory requirement).

9. Record discussion of conference including decisions and agreements (or disagreements) reached and furnish a copy for record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

10. Review notification procedures for weather or non-working days.

1.8 PROJECT CONDITIONS

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

1. Coordinate work activities daily with Owner so Owner implement protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area.

2. Before working over structurally-impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated prior to proceeding with work over the impaired deck area.

B. Protect building whose roof is to be restored, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from coating operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Owner assumes no responsibility for condition of areas to be restored. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

E. Weather Condition Limitations: Do not apply roofing restoration materials during inclement weather or when a 40% chance of precipitation is expected.

F. 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.

G. Materials shall be stored at room temperature until immediately prior to application. Discontinue the application if the material cannot be stored at a temperature, which permits even distribution during application.

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

I. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:

1. Close air intakes into the building.

2. Have a dry chemical fire extinguisher available at the jobsite.

3. Post and enforce "No Smoking" signs.

J. Do not inhale spray mist; take precautions to ensure adequate ventilation.

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

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

M. Minimum temperature for application is 60°F and rising.

1.9 WARRANTY

A. Upon completion of installation, and acceptance by the Owner and Architect, the manufacturer will supply to the Owner the specified warranty.

B. Installer will submit a two (2) year warranty to the membrane manufacturer with a copy directly to Owner.

C. Manufacturer will provide the Owner with a materials warranty.

D. Warranty shall commence on date of substantial completion or final payment, whichever is agreed by contract.

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

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

b. General rooftop housekeeping and clean-up, subject to limits, but generally including removal of incidental debris.

1.10 DELIVERY, STORAGE AND HANDLING

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

B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).

C. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.

D. It is the responsibility of the contractor to secure all material and equipment on the job site. If any material or equipment is stored on the roof, the contractor must make sure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the contractor will be the sole responsibility of the contractor and will be repaired or replaced at his expense.

1.11 MANUFACTURER'S INSPECTIONS

A. When the project is in progress, the roofing system manufacturer will provide the following:

1. Keep the Owner and Architect informed as to the progress and quality of the work as observed.

2. Provide job site inspections a minimum of two (2) days a week.

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

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

PART 2 — PRODUCTS

2.1 PRODUCTS, GENERAL

A. 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. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

B. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements and Division 01 provisions.

1. Proposals shall be accompanied by a copy of the manufacturer's standard specification section. That specification section shall be signed and sealed by a professional engineer licensed in the state in which the installation is to take place. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.

2. Include a list of three (3) projects of similar type and extent, located within a one hundred mile radius from the location of the project. In addition, the three projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.

3. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.

4. The Architect and Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 ACCEPTABLE MANUFACTURERS

A. The design is based upon roofing systems engineered and manufactured by The Garland Company or approved equal:

The Garland Company
Telephone: (800) 762-8225 ext. 720
Website: www.garlandco.com
Local Representative: Richard Jones

2.3 DESCRIPTION

A. Restoration work including but not limited to:

1. White Elastomeric Roof Coating: Pyramic; Energy Star, CRCC, & Title 24 approved white acrylic roof coating:

1. Weight/Gallon 12 lbs./gal. (1.44 g/cm3)

2. Non-Volatile % (ASTM D 1644) 66 min

3. Reflectance 81%

4. Emmitance 89%

5. SRI 101

2.4 WASHES FOR MEMBRANE PREPARATION

A. Cleaner wash for preparing surface for coating.

1. TSP (Tri Sodium Phosphate): A heavy duty degreaser and all purpose cleaner

2. Simple Green: All-purpose Industrial degreaser/cleaner

2.5 RELATED MATERIALS

A. Sealants and Repair Materials for use in field and flashing repairs.

1. Silverflash Mastic: Cold Applied, Silver trowel grade mastic used in three course applications as approved and furnished by the membrane manufacturer for moving joints.

2. Garmesh Reinforcement: SBR Coated fiberglass scrim used as reinforcement for roof repairs.

3. Polyester Soft Reinforcement: Strong elastic polyester reinforcement

4. Urethane Sealant: One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints.

A. Tensile Strength (ASTM D412): 250 psi

B. Elongation (ASM D412): 950%

C. Hardness, Shore A (ASTM C920): 35

D. Adhesion-in-Peel (ASTM C920): 30 pli

PART 3 — EXECUTION

3.1 EXAMINATION

A. Examine substrate surfaces to receive coating and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.

B. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.

C. Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of the roofing system.

D. Acrylic coating rate: Acrylic coating shall be applied at no less than four (4) gallons per square in a two coat application.

E. Apply roofing materials as specified herein unless recommended otherwise by manufacture's instructions. Keep roofing materials dry during application. Do not permit phased construction.

3.3 CLEANING AND SURFACE PREPARATION

A. All defects such as deteriorated roof decks must be repaired; saturated insulation board must be replaced, etc. per manufacturer's specifications prior to application of the coating materials. Verify that existing conditions meet the following requirements:

1. The existing membrane 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.

B. Remove all loose dirt and foreign debris from the roof surface.

C. Do not damage roof membrane in cleaning process.

D. 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.

E. Clean the entire roof by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10% 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. In ponding areas be sure to rinse at least twice to make sure all cleaning solution is rinsed clean. Cleaning residue will act as a bond breaker if not properly rinsed. Allow roof to dry before continuing.

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

G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. Repair all surface defects (cracks, blisters, tears):

H. Blister Repairs & General Repairs

1. Clean the repair area.

2. All blisters must be cut and opened. Use a roofer's knife to open the blister with an "X" or "H" cut. Fold the flaps and remove any existing moisture. Permit the area to dry before applying repair materials.

3. After positioning the six (6) inch reinforcement to roll out, apply acrylic coating about 8 in (20 cm) wide to surface where reinforcement ply is going to be applied. Do not apply acrylic coating too far ahead of fabric or coating may dry before fabric can be embedded. The minimum application rate should be 1.5 gallons/square (0.61 liters/m^2). Immediately roll 6 in (15 cm) width reinforcement into coating. Care should be taken to lay the fabric tight to the roof surface without air pockets, wrinkles, fishmouths, etc.

4. Apply acrylic coating about 8 in (20 cm) wide to surface where the repair was made. The minimum application rate should be 2.0 gallons/square (0.82 liters/m^2). Care should be taken to avoid air pockets, wrinkles, fishmouths, etc. Allow to dry for a minimum of 24 hours before applying finish coats.

5. After embedding reinforcement into the acrylic coating, apply additional coating to completely saturate the fabric at minimum application rate of 1.0 gallon/square (0.41 liters/m^2). This saturation coat should be applied as soon as possible after embedding reinforcement into the coating.

3.4 PRE-TREATMENTS

A. Known Growth - General Surfaces: After areas of moss, mold, algae and other fungal growths or vegetation have been removed and surfaces have been thoroughly cleaned, apply a biocidal wash (TSP, Simple Green) at a maximum spread rate of 0.2 gallons/square (0.1 liters/m^2), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution. Note: See Health & Safety data before use.

3.5 SYSTEM APPLICATION

A. Application of Pyramic Acrylic Base & Finish Coats:

1. Before application of base coat then again prior to finish coat contact your local Garland Representative needs to inspect application.

2. After repair applications have been completed and allowed to dry, apply Pyramic Acrylic Coating in a uniform manner at minimum application rate of two (2) gallons per square over the entire roof, back roll entire base coat. Allow base coat to completely dry a minimum of 24 hours and then apply acrylic top coat at a minimum rate of two (2) gallons per square over the entire roof.

3. During final application of the coating special attention should be given to coating flashings and other critical areas to build adequate membrane thickness. Multiple coats may be necessary on verticals to prevent sagging. In any event all specified material must be applied and minimum membrane thickness achieved.

C. Membrane Deterioration:

1. It is recommended that fiberglass/polyester mat be used over areas of the membrane that are in deteriorated condition.

D. Coating shall be applied in strict accordance with manufacture's published directions and instructions.

1. Manual Application:

a. Pour coating onto roof in 24 in. rows and spread with ½ in. nap or foam roller.

b. Back roll coating with an 18 in. (45 cm) wide ½ in. nap roller for even application. Quality check that coating meets 2 gallons per square, 32 mil wet film thickness.

1. Spray Application:

a. Spray across roof, back-roll to ensure uniform coverage, then back spray across the same area to complete application.

b. Spray Pump Recommendations:

1) Pump Ratio 45:1

2) Hose ¾ ID Hose first 100 ft. (30 m) with swivel connections and ½ in. ID Hose for second 100 ft. (30 m).

3) Pressure 5000 psi.

4) Working pressure is 2700 to 3000 at the gun. Depending on equipment setup, you may be able to spray the coating as low as 1800 psi. Based on tip size, raise pressure to remove fingers in spray pattern.

5) High pressure fittings.

6) Input flow 100 psi.

7) Tip = .032 - .037 for a 8 in. (20 cm) pattern at 12 in. (30 cm) distance.

8) Recommended 12 in. (30 cm) extension with swivel tip.

9) Tip and pump sizes will change depending on temperature and pattern concerns.

c. Keep wet film gauges on-hand at all times during the application process to ensure proper coverage. Coverage rates below will designate gallons, wet mils, and dry mils.

1) 1.0 gallons will equal 16 wet mils and 12 dry mils

2) 1.5 gallons will equal 24 wet mils and 19 dry mils

3) 2.5 gallons will equal 40 wet mils and 32 dry mils

4) 4.5 gallons will equal 72 wet mils and 57 dry mils

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roof coating system. Perform field inspection a minimum of two (2) days per week.

B. Correct defects or irregularities discovered during field inspection.

3.7 CLEANING

A. Remove dirt and debris from all walls, windows, floors, ladders and finished surfaces.

B. In areas where finished surfaces are soiled by dirt, debris or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning instructions and conform to their instructions.

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

3.8 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during roofing procedures. Comply with requirements of authorities having jurisdiction

3.9 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.

H. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

3.10 DEMONSTRATION AND TRAINING

A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:

1. Roof troubleshooting procedures.

2. Notification procedures for reporting leaks or other apparent roofing problems.

3. Roofing maintenance.

4. The Owner's obligations for maintaining the roofing warranty in effect and force.

5. The Manufacturer's obligations for maintaining the roofing warranty in effect and force.

3.11 OWNER SUPPLIED MATERIALS

A. Contractor must submit all quantities of owner supplied materials; per the list supplied below required to complete the project per specification section 075631 with their bid.

B. Contractor must provide all labor and incidental materials to install owner supplied materials as part of their bid.

C. All materials not specifically included in the owner supplied materials section will be the responsibility of the contractor to provide and install in compliance with section 07563.

D. Contractor must provide an accurate list of owner supplied materials to the Owner, overages will be returned to the owner and under estimated quantities will be the full responsibility of the contractor to supply and install in full compliance with this section.

E. Freight charges of owner supplied materials will be the responsibility of the owner. Contractor must take delivery of materials, properly protect, cover and store at jobsite.

F. Contractor must be able to provide certification in writing from roof system manufacturer that the contractor is approved to install the specified roof system and provide all warranty requirements of section 07563.

G. Materials specifically provided by the Owner;

- Stressply Plus FR Mineral (75 square feet per roll)
- Stressbase 80 (150 square feet per roll)
- Weatherking Flashing Adhesive (5 gallon pail)
- Silver Flash Mastic (5 gal pail)

- Tuff Stuff Urethane Sealant (10.1 oz tube)
- Garla Flex Mastic (10.1 oz tube)
- Garla-Prime VOC (5 gal pail)
- Garmesh (150’ x 6”)
- Pyramic Acrylic Coating, Base Coat (55 gal drum)
- Pyramic Acrylic Coating, Top Coat (55 gal drum)
- WhiteKnight Plus WC, Urethane Top Coat (5 gallon pail)
- Freight to jobsite

END OF SECTION 07563