Murrieta Valley Unified School District
41870 McAlby Court
Murrieta, CA 92562

DISTRICT BID ADDENDUM NO. 1

Date: April 10, 2025

To: All Bidders

From: Jose Contreras, Facilities Director

Re: 2024-25-17 Roofing System Replacement Project

The attached Addendum is issued for the purposes of amending certain requirements of the bid and hereby made part of and incorporated in full force as part of the Contract Documents. Unless hereinafter specifically noted or specified otherwise, all work shall confirm to the applicable provisions of the Contract Documents.

BID ADDENDUM NO. 1 DESCRIPTION:

1. Pre-Bid RFI Responses

Question: How much is the engineer's estimate?

Answer: There is no engineer's estimate for this project.

Question: Is there an allowance?

Answer: The budget allowance is $20,000.00.

Question: Please confirm what the engineer's estimate is for this project.

Answer: There is no engineer's estimate for this project.

Question: I would like clarification on which buildings are going to receive a new gutter. I was aware of classroom 19-22.

Answer: All gutters will be replaced on the portable classrooms.

2. Please see attached Addendum 01 – Site Visit Certification which was missing from the bid documents.
3. Please see attached Addendum 01 – BES Classrooms 24-28 for revision to proposed system.

ATTACHMENTS:

- Addendum 01 – Site Visit Certification – 04/09/25
- Addendum 01 – BES Classrooms 24-28 – 04/09/25

END OF DISTRICT BID ADDENDUM NO. 1

SITE VISIT CERTIFICATION

Addendum 01 - 04/09/25

I certify that I have visited the site of the proposed work and have fully acquainted myself with the conditions of the Project site, as well as those relating to construction and labor of the Project, and I fully understand the facilities, difficulties, and restrictions which may impact the total and adequate completion of the Project.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

I agree to fully defend, indemnify and hold harmless the DISTRICT, Architect, Inspectors, Construction Manager (if any), and their directors, officers, employees, agents and volunteers from any damages, costs, expenses, or omissions related to conditions that could or should have been identified during my visit to the site.

Signature of Bidder: _____

Typed Name of Bidder: _____

Addendum 01 - Revised 04/09/25

SUBMITTAL DOCUMENTS

FOR

ROOF REPLACEMENT

OF

Murrieta Valley Unified School District
Buchanan Elementary School
Classrooms 24-28
Murrieta, CA

Encapsulation of the existing roof using the WeatherWeld 16-30 system and Title 24 compliant reflective roof coating.

Prepared For:

Jose Contreras
Murrieta Valley Unified School District
email: jcontreras@murrieta.k12.ca.us
phone: (951) 826-6324

Date Prepared: 4/9/2025
Date Inspected: 12/8/2023
Project ID: 1147c577-e535-460e-b005-b6207ca720d6
Existing Roof: Wood Deck/ Standing Seam Metal Roof

Proposed System: R-16-30-M-A

Design Considerations:

- 40 Year NDL Warranty
- UL Class A
- FM 1-90 (45 psf) Design Pressure
- Title 24 Compliant Reflective Surface Coating

Measurements are from aerial survey and do not include roof slope or parapet walls. This image is for reference only and not to be used for estimation purposes.

Provided By:

WEATHERWELD
ROOFING MADE SIMPLE

WeatherWeld - *A Division of Liquiform Technologies Inc.*
9757 7th St. #803 Rancho Cucamonga, CA 91730
(888) 440-3224
info@weatherweld.com

Technical Contact: Kody Berry
Phone: (909)-477-1842
Email: kody@weatherweld.com

Design Contact: Robert Weygant
Phone: (951) 655-0537
Email: robert@weatherweld.com

Scope of Work

Overview

PROJECT LOCATION:	4021 Torrey Pines Rd, Murrieta, CA 92563, USA Murrieta, CA 92563 Classrooms 24-28
WEATHERWELD SYSTEM:	R-16-30-M-A
EXISTING CONDITIONS:	Wood Deck/ Standing Seam Metal Roof
SYSTEM OVERVIEW:	Encapsulation of the existing roof using the WeatherWeld 16-30 system and Title 24 compliant reflective roof coating.
WARRANTY:	40 Years
FIRE RATING:	UL Class A
DESIGN PRESSURE:	45 PSF (FM 1-90)
CLIMATE ZONE:	10
THERMAL REQUIREMENT:	None

Materials

WEATHERWELD MEMBRANE

WeatherWeld Emulsion:	30 Gallons / 100 square feet
WeatherWeld Fiberglass:	16 Lbs. / 100 square feet
Acrylic Basecoat:	1.5 Gallons / 100 square feet
Acrylic Topcoat:	1.5 Gallons / 100 square feet
Anchor/Base Sheet:	None

INSULATION

Insulation:	None
Substrate / Cover Board:	None

ACCESSORIES

Polyurethane Sealant:	Apply sealant as needed to fill voids or openings at metal flashings.
Asphalt Primer:	Prime bare metal to receive WeatherWeld.
Asphalt Adhesive:	Not Applicable
Self-Adhering Membrane:	At terminations and penetrations noted in the drawings
Roof Vents:	Install One Way Vents every 1000 square feet

Detailing Conditions

Conditions listed are common rooftop details which may or may not be present on this project.

Flat Edge Termination Flashings	Roof Drain Flashings	Rooftop Duct Encapsulation
Raised Edge Edge Flashings	Pipe Penetration Flashings	Skylight Flashings
Gutter Edge Flashings	Mechanical Equipment Curbs	Roof Hatch Flashings
Roof Transition Flashings	Sheetmetal Storm Collars	Smoke Vent Flashings
Wall Termination Flashings	Pitch Pocket Flashing	Misc. Sheetmetal Flashings
Parapet Coping Caps	Expansion / Control Joint Flashing	

General Information

1.0 PROCEDURE

A. Repair any damage to the substrate, remove any exposed or erupted fasteners, and clean thoroughly in preparation to receive the roof system.

B. Where seams exceed 2” in height, install cant strips at each seam.

C. Apply Seamless roof membrane materials to provide a watertight roof assembly that meets WeatherWeld warranty requirements. Encapsulate entire roof area.

D. Install Flashings and Accessories.

E. Install Walkway pads or anti-Skid Traffic Coating (where specified by owner).

2.0 ADMINISTRATION

A. Refer to local laws and building code for thermal value requirements, wind uplift, and other requirements.

B. Refer to Manufacturer installation manual, detail drawings, and specific industry guidelines for good work practice procedures.

C. Follow all recommendations referenced in the current edition of NRCA roofing and Waterproofing Manual.

D. Wind Uplift Rating Required: 45psf.

E. Fire Rating: UL Class A

3.0 ROOF INSPECTION

A. Provide written documentation to owner to replace wet/damaged roofing materials or decking.

B. Installer is responsible to ensure no ponding water exists after 48 hours after precipitation.

4.0 PROTECTION OF WORK

A. Protect all areas from material spills and overspray with appropriate masking.

B. Protect adjacent areas from vehicle or equipment staging damage.

C. All areas not specified for roofing material installation must be clean and free of material drips or overspray before project is considered complete.

5.0 GENERAL REQUIREMENTS AND BEST PRACTICES

A. Ensure all surfaces are clean, compatible, dry, free from debris and sharp projections, dirt, grease, etc. before installing roofing materials.

B. Install asphalt primer to facilitate proper adhesion at flashings, walls, and other rooftop components.

C. Ensure roof is washed between steps to ensure adequate adhesion.

D. Contractor is responsible to ensure no ponding water exists when the project is complete.

Substrate Preparation

1.0 GENERAL:

A. All necessary repairs to field and flashings must be performed according to accepted roof construction best practices.

B. Repairs include but are not limited to the removal and replacement of all wet insulation, damaged roof decking and/or structural members, and/or defective materials.

C. Existing conditions may be identified through a moisture detection survey such as an infrared scan.

2.0 PROCEDURE:

A. Remove down to the surface of the roof, all damaged roof flashings at curbs and parapet walls.

B. Remove down to the surface of the roof, all existing flashings at roof drains and penetrations.

C. Where roof repairs create inconsistencies in the roof surface, fill any low spots with like materials to create a smooth, even surface for application of new roof membranes.

D. Verify that existing conditions meet the following requirements:

1. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof materials in cleaning process.
2. 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.
3. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, mold, moss, paint, oil, talc, rust, or other foreign substance. Use a bio-degradable cleaner when necessary and warm water. Scrub heavily soiled areas with a brush. Power wash roof thoroughly with an industrial surface cleaner equipped with one-piece balanced spray rotating jets for streak free close contact cleaning. Rinse with fresh water to completely remove all residuals. Allow roof to dry thoroughly before continuing.

Roof System Installation

1.0 INSULATION

A. Not Applicable.

2.0 BASE SHEET

A. Not Applicable.

3.0 WEATHERWELD SEAMLESS COMPOSITE MEMBRANE

A. Coverage Rates:

1. 30 Gallons / 100 square feet of WeatherWeld Emulsion.
2. 16 Lbs. / 100 square feet of Weatherweld Fiberglass Roving.

B. Installation

1. Extend composite applications to top of outside edges of parapet walls / terminations / equipment / counter flashings / pipe penetration flashings.
2. Spray apply membrane to encapsulate the entire roof area.
3. Allow to cure for 10 days.

4.0 REFLECTIVE COATING SYSTEM

A. Coverage Rates:

1. 1.5 Gallons / 100 square feet of WeatherWeld Acrylic Base-Coat.
2. 1.5 Gallons / 100 square feet of WeatherWeld Acrylic Top-Coat (Title 24 Compliant).

B. Installation

1. Apply reflective coating to all surfaces covered with Seamless Composite Membrane.
2. Install Basecoat and allow to cure for 2 days.
3. Install Topcoat and allow to cure for 2 days.

5.0 PROTECTION

A. Protect all areas from material spills and overspray with appropriate masking.

B. Protect adjacent areas from vehicle or equipment staging damage.

C. All areas not specified for roofing material installation must be clean and free of material drips or overspray before project is considered complete.

Flashing Considerations

1.0 GENERAL

A. All rooftop flashings except sheetmetal counter-flashings shall be encapsulated with 250 mills DFT of WeatherWeld membrane when complete.

B. All flashing heights must be Min. 8". Contact WeatherWeld rep for guidance on existing flashings less than the Min. flashing height requirement.

C. Wind uplift attachment: 1-90 Install flashings with attachment systems to meet wind uplift requirement.

D. All coping and edge termination flashings must be cleat attached.

E. Perimeter flashings must be attached by continuous cleat where applicable.

F. All terminations will be counter flashed with sheetmetal by min. 3" including exterior walls.

G. Sheetmetal must be min 24 Ga. Galvanized or bonderized (if match painted. Owner chooses color.) Sheetmetal coping may be Kynar coated.

H. Existing flashings in serviceable condition may be reused.

I. Clean flashings to bare metal.

J. Edge flashings and scuppers must be removed and replaced with new.

K. Un-flashed or deteriorated flashings at penetrations must have new flashing installed.

L. Prime all flanges with asphalt primer at rate of 1 Gal per square.

M. Install continuous strip of Self-Adhering Membrane under all perimeter flashings extending 2 inches over edge.

N. Install continuous strip of Self-Adhering Membrane at sheetmetal flanges min. 2 inches onto flange extending min. 6 inches onto roof.

O. Sheetmetal extension skirt is to be used where counterflashing cannot be used, or existing flashing is too tight to extend WeatherWeld applications.

2.0 BASE FLASHINGS

A. Install cant strip adhered in adhesive.

B. Extend base sheet adhered in adhesive extending to top of base flashing.

C. Install new base flashing with Self adhering membrane where required.

D. Install new sheetmetal counterflashing at existing reglet.

3.0 WALLS ABOVE BASE FLASHINGS

A. Install 8" self-adhering membrane strip covering cracks in walls.

B. Patch cracks in wall with polyurethane sealant.

C. Install acrylic coating system on stucco walls above Baseflashing. Terminate installation at base of sheetmetal coping.

D. Extend WeatherWeld application to the outside edge of wall.

4.0 PARAPET WALLS

A. Extend WeatherWeld application to the outside edge of wall.

B. Install new 24 Ga. sheetmetal coping cap. Cleat attached I-90 Rating.

C. Install Self-Adhering Membrane cover over joints.

D. Color to chosen by owner.

5.0 SKIRTED COUNTERFLASHINGS

A. Extend WeatherWeld application to just below existing counterflashing or coping cap.

B. Install new 24 Ga. sheetmetal skirt flashing behind the existing flashing. Flashing must extend a minimum of 3 inches below and 1 inch behind the existing counterflashing.

C. Fasten to meet the specified wind uplift rating.

D. Color to chosen by owner.

6.0 SHEETMETAL EDGE TERMINATION

A. Remove existing perimeter edge metal and replace with new sheetmetal edge flashing system.

B. Color to chosen by owner.

7.0 PIPES AND PENETRATIONS

A. Flashed Penetrations – If in serviceable condition, reuse existing.

B. Un-flashed Penetrations - Install new penetration flashings with sheetmetal counterflashing.

C. Install Sheetmetal storm Collars.

8.0 ROOFTOP EQUIPMENT

A. Install Tapered Insulation at back side of rooftop equipment to facilitate proper drainage.

B. Extend base sheet to top of equipment curbs.

C. Encapsulate with WeatherWeld.

9.0 BUILDING TRANSITIONS

A. Metal expansion joint- extend WeatherWeld under roofed base flashing. Encapsulate sheetmetal above Baseflashing with WeatherWeld.

10.0 DRAINS

A. Ensure drains function properly and are free of debris.

B. Flush mount drains - Replace compression clamps and drain screens.

C. Scupper drains - Remove and replace with new sheet metal scupper.

D. Encapsulate drain bowls and flanges with WeatherWeld.

11.0 MOISTURE VENTS

A. Install one way moisture vents every 1000 sq ft. Encapsulate flange with WeatherWeld.

12.0 PIPE SUPPORTS

A. Remove existing wood blocks supporting rooftop pipes.

B. Install Recycled rubber pipe support block with Galvanized steel strut.

C. Dura-Block or Equal.

13.0 DESCRIPTION

A. Remove existing roof and fiberboard, and clean in preparation to receive membrane.

B. Install specified base sheet to the LWIC concrete deck with fasteners appropriate to the deck

type. Attach in accordance with local building codes and wind uplift requirements.

C. Apply Seamless roof membrane materials to provide a watertight roof assembly that meets WeatherWeld warranty requirements. Encapsulate entire roof area.

D. Install Flashings and Accessories.

E. Install Walkway pads.

F. Apply Anti-Skid Traffic Coating (where applicable).

14.0 ADMINISTRATION

A. Refer to local laws and building code for thermal value requirements, wind uplift, and other requirements.

B. Refer to Manufacturer installation manual, detail drawings, and specific industry guidelines for good work practice procedures.

C. Follow all recommendations referenced in the current edition of NRCA roofing and Waterproofing Manual.

D. Wind Uplift Rating Required: I-90

E. Fire Rating: UL Class A

15.0 ROOF INSPECTION

A. Provide written documentation to owner to replace wet/damaged roofing materials or decking.

B. Installer is responsible to ensure no ponding water exists after 48 hours after precipitation.

16.0 GENERAL REQUIREMENTS AND BEST PRACTICES

A. Ensure all surfaces are clean, compatible, dry, free from debris and sharp projections, dirt, grease, etc. before installing roofing materials.

B. Install asphalt primer to facilitate proper adhesion at flashings, walls, and other rooftop components.

C. Ensure roof is washed between steps to ensure adequate adhesion.

D. Contractor is responsible to ensure no ponding water exists when the project is complete.

WeatherWeld™

ROOFING MADE SIMPLE

- ✓ **40 Year NDL Warranty**
- ✓ **CA Title 24 Compliant**
- ✓ **Seamless Membrane**
- ✓ **Patented Technology**
- ✓ **UL Class A**

- ✓ **Recovery**
- ✓ **Non-Insulated**

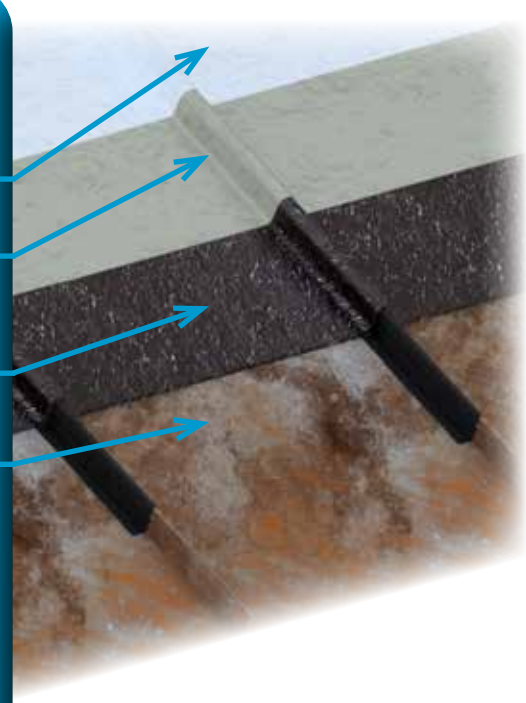
R-16-30-M-A

Title 24 Compliant Acrylic Top Coating

Acrylic Base Coating

Reinforced Emulsion Membrane

Metal Panel Roof



WeatherWeld **R-16-30-M-A** is a completely **seamless** roof system designed for installation over existing standing seam and corrugated metal roof systems*. **Contact WeatherWeld for more information on acceptable roof types.*

WeatherWeld is **engineered** to be the strongest roof system on the market.

WeatherWeld combines the longest lasting and strongest materials in the world with a **patented** 3D printer to create a **seamless** membrane designed to last for generations.

WeatherWeld Asphalt emulsion, sprayed along with intertwined fiberglass creates a virtually impenetrable membrane.

MATERIALS

Base/Anchor Sheet:

- Base Sheet: Not Required

Reinforced Membrane: Spray Applied

- Emulsion: 30 Gal. - WeatherWeld Asphalt Emulsion
- Fiberglass: 16 Lbs. - WeatherWeld Fiberglass Roving

Reflective Roof Coating: Spray Applied

- Base Coat: 1.5 Gal. WeatherWeld Base Coat
- Top Coat: 1.5 Gal. WeatherWeld Title 24 Top Coat

or

- Aluminum Coating: 2 Gal. WeatherWeld Aluminum Coating

Accessory Products:

- Self Adhering Membrane: WeatherWeld SA Membrane
- Asphalt Primer: ASTM D312 Water Based Asphalt Primer

Coverage rates listed are per 100 square feet of applied membrane.

SYSTEM PROPERTIES

Property	Value	Standard
Performance		
Weight Per Sq. Ft.	1.5 Lbs (0.68 Kg)	
Thickness:	250 mil (6.5mm) DFT	
Tensile Strength:	600 psi (4136 kN/m$^{2)}$	*ASTM D2370*
Elongation:	10%	*ASTM D4830*
Puncture Resistance:	700 Lbs.	*ASTM D4830*
Water Absorption:	1% Maximum (by Weight)	*ASTM D570*
Fire Rating:	UL Class A Assembly	*ASTM E84*
Reflectivity - CA Title 24*		
SRI:	104 / 93 after 3 Years	*As Calculated*
Solar Reflectance:	0.83 / 0.75 after 3 Years	*ASTM C1549*
Thermal Emittance:	0.88 / 0.92 after 3 Years	*ASTM C1371*
**Based upon application with WeatherWeld Cool Roof Coating*		

WeatherWeld - A Division of Liquiform Technologies Inc.

9757 7th St. #803 Rancho Cucamonga, CA 91730 | (888) 440-3224 | info@weatherweld.com | (888) 440-3224

WEATHERWELD™

R-16-30-M-A

OVERVIEW

Installation of the WeatherWeld system is a simple 4 step process:

1. Prepare surfaces, seams, walls, flashings, drains, and penetrations.
2. Spray apply WeatherWeld reinforced membrane.
3. Spray apply reflective acrylic coating system.
4. Install flashings and roof accessories.

Contact WeatherWeld representative for final inspection.

PREPARATION

- Prior to installation, ensure that adhesion testing was conducted in accordance with WeatherWeld adhesion testing procedures to verify a minimum adhesion strength of four (4) pounds per linear inch (pli) to the applicable substrates. When calculating material requirements for a particular project, consideration must be given to applicator variance and surface texture.
- Confirm local water run-off ordinances and restrictions prior to cleaning roof.
- Pressure wash all surfaces receiving WeatherWeld to remove all dust, dirt, debris and other foreign contaminants.
- If the roof surface becomes contaminated with dirt, dust, or other particles at any time during the application of the WeatherWeld system, cleaning measures must be taken to restore the surface to a suitable condition.
- Ensure roof is dry prior to application.

WEATHERWELD SEAMLESS ROOFING APPLICATION

- Apply one layer of the composite roofing at the following ratio:
  1. Asphalt Emulsion: 30 gal. per 100 square feet (12.2 L/m2).
  2. Fiberglass Roving: 16 lb. per 100 square feet (0.78 Kg/m2).
- **DO NOT DILUTE**. No water or filler material may be added to the emulsion to thin or extend pot life.
- Fiberglass must be disbursed from the applicator in varying intertwined lengths, up to 24 inches (610mm).
- Thoroughly mix fiberglass and emulsion prior to application on roof surface.
- Loose strands must be brushed by hand, removed or filled with emulsion to create a solid surface.
- Upon completion, no area may be less than 250 mil dry film thickness (DFT).
- Install additional material at all roof flashings, 500 mils (DFT) of WeatherWeld composite installed, extending 24” in each direction prior to completion of the project.
- Areas where application exceeds 500 mils wet, such as base flashings and penetrations, brush by hand to prevent surface crazing.

REFLECTIVE COATING INSTALLATION

- Prior to coating application, wash the roof surface with water.
- Do not continue until all surfaces have thoroughly dried, confirmed by a reading of zero on a calibrated moisture meter.
  1. Acrylic Base Coating: Apply Base Coating at 1 1/2 gal. per 100 square feet (0.6 L/m2).
  2. Acrylic Top Coating: Apply Reflective Top Coating at 1 1/2 gal. per 100 square feet (0.6 L/m2).

or

  3. (Alternate) Aluminum Coating: Apply Reflective Coating at 2 gal. per 100 square feet (0.8 L/m2).

FLASHINGS

- All flashings must have 500 mills DFT of WeatherWeld Composite installed extending 24” in each direction.
- The following items are required to be in watertight condition for a WeatherWeld warranty to be issued for the project:
  1. Drains and Scuppers.
  2. Sheetmetal Copings and Counter-Flashings.
  3. Perimeter and Edge Flashings.
  4. Equipment Platforms and Sheetmetal Pans.
  5. Expansion Joints.
  6. Sheetmetal Ducts and Seals.
  7. Electrical Enclosures and Conduits.
  8. Transition Flashings.
  9. Any other item that may affect the watertightness of the Roof.

ROOF ACCESSORIES (INSTALLED AFTER COATING SYSTEM)

- Walkway Pads or Non-Slip Walking Surface
- Polymer Pipe Supports, Storm Collars on Pipes, Drain Rings and Screens
- Coping Caps and Flashings
- Access Hatches and Ladders

INSPECTION

- Inspect entire roof area and touch-up deficient areas with WeatherWeld or reflective coating as necessary to ensure complete and uniform coverage. Special attention should be given to critical areas of roof, including roof penetrations, transitions, existing membrane seams, flashings, and drains.

LIMITATIONS

- These are general guidelines for application of the WeatherWeld Seamless Roof System. The material requirements may vary depending on the specific job requirements. If unusual conditions exist, contact your local WeatherWeld Representative.
- WeatherWeld Seamless Roof Systems must be applied to structurally sound substrates and properly prepared surfaces. All surfaces must be clean and dry before application of coatings. WeatherWeld Seamless Roof Systems must not be applied over wet insulation or roofing materials. Failure of the substrate does not constitute failure of the WeatherWeld coating or system.
- WeatherWeld Seamless Roof Systems are designed for use on roofs with positive drainage.
  1. Do not begin when rain or other conditions such as fog or heavy dew are possible within a 48-hour period.
  2. Surfaces must be at least 6° F (3° C) above the dew point, and rising. Surfaces must be clean before application of product. Care must be taken to ensure that debris accumulation after original cleaning does not interfere with any stage of application. If either condition occurs, additional cleaning may be required.
  3. Drying time is affected by numerous factors, including temperature, direct sunlight, relative humidity, air movement, thickness, etc. Higher temperature and/or humidity will result in faster cure times. Lower temperature and/or humidity may extend cure times.
  4. Deviations from these application guidelines and specific material requirements may adversely affect the roofing system performance and are strictly prohibited.
  5. Applicator must comply with all applicable local, state, and federal regulations if asbestos, lead-based paint or other hazardous materials are encountered.

WEATHER RESTRICTIONS

- Do not attempt application if ice, snow, moisture, or dew is present. Ambient temperature must be 50°F (10°C) and rising through the day. Restrict application when overnight temperature drops below 40°F (4.4°C). Cooler temperatures will negatively impact the properties of the system. Contact your WeatherWeld Representative for proper cold weather applications.
- Do not attempt application if moisture or dew is present. Ambient temperature must be less than 110°F (43°C). Contact WeatherWeld Representative for proper hot weather application

STORAGE

- WeatherWeld should be stored in a shaded ventilated area under a tarp. Do not store in direct sunlight. Storage temperature must range from 60-80°F (15°C to 26°C). Indoor ventilated storage is recommended when ambient temperature is below 60°F (15°C) or above 80°F (26°C).

WARRANTY

- 40-year Warranty: a written leak free guarantee that covers against roof leaks for 40 years.
- Owner responsible for ensuring roof drains stay clear, and facilitating WeatherWeld roof inspections.

REQUIRED EQUIPMENT

- Graco 1017 roof pump with 500’ 1” SAE hydraulic hose.
- Towable air compressor
- 500 feet of 1/2 inch air hose.
- Emulsion tanker (delivered to jobsite).
- WeatherWeld 3D roof printer (rented from WeatherWeld on a per job basis).
- Pressure washer.
- Water hose and water source (enough length to wrap around building).
- Wet mil gauge.
- General Personal Protection Equipment (PPE).
- General carpentry, roofing and sheet metal tools.

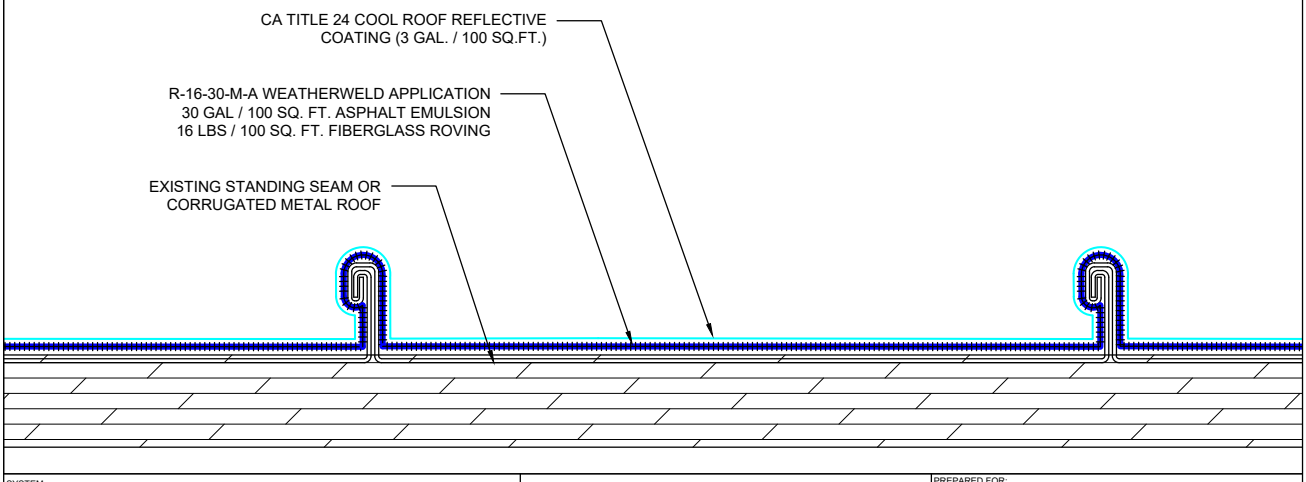
Seamless, Secure, WeatherWeld - A Division of Liquiform Technologies Inc.
9757 7th St. #803 Rancho Cucamonga, CA 91730 | (888) 440-3224 | info@weatherweld.com | (888) 440-3224

Detail Drawings

- 101 - System Overview
- 102 - System Overview - Seams > 2”
- 201 - Flat Edge
- 202 - Pre-fabricated Gutter
- 203 - Ridge / Modline
- 301 - Side Wall
- 302 - Equipment Pad
- 501 - Vent Pipe

System Overview

Deck:	Standing Seam or Corrugated Metal Roof
Base Sheet:	None
Asphalt Emulsion:	30 Gal
Fiberglass Roving:	16 Lbs
Coating:	CA Title 24 Cool Roof Reflective Coating (3 Gal. / 100 Sq.Ft.)



SYSTEM:

R-16-30-M-A

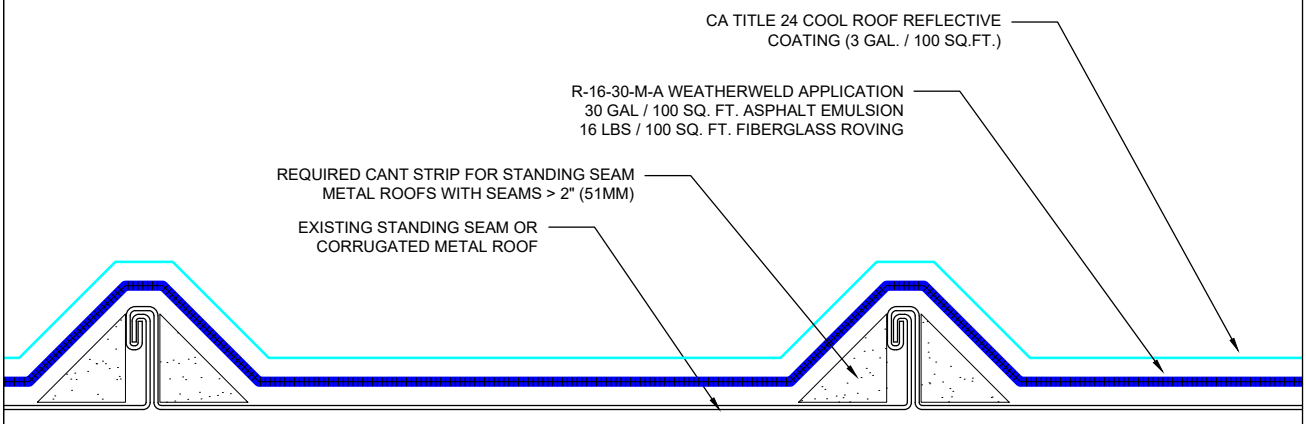
A DIVISION OF LIQUIFORM TECHNOLOGIES, INC.
9757 7th Street
Suite 803
Rancho Cucamonga, CA 91730-5297
(888) 440-3224
www.weatherweld.com

PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
SYSTEM OVERVIEW				2/18/25	NTS

System Overview

Deck:	Standing Seam or Corrugated Metal Roof
Base Sheet:	None
Asphalt Emulsion:	30 Gal
Fiberglass Roving:	16 Lbs
Coating:	CA Title 24 Cool Roof Reflective Coating (3 Gal. / 100 Sq.Ft.)



SYSTEM:

R-16-30-M-A

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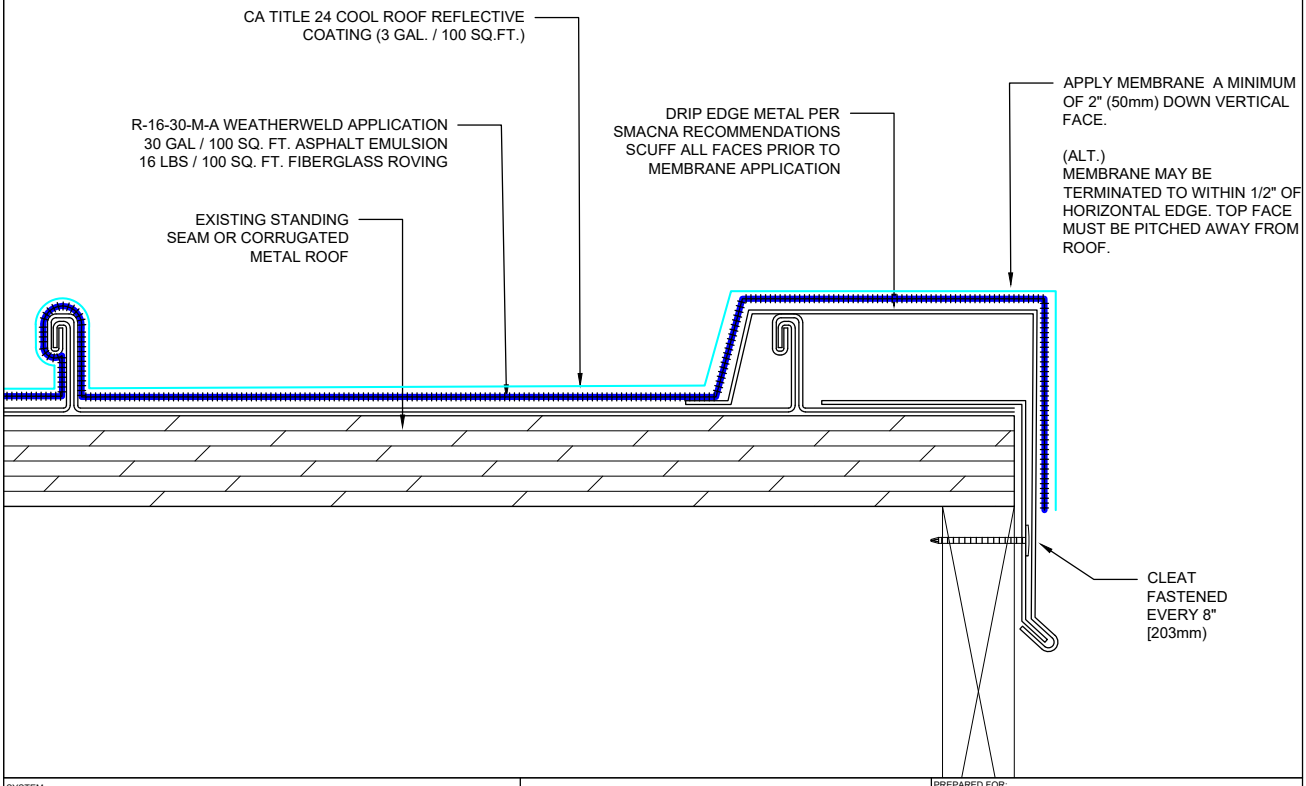
PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
SYSTEM OVERVIEW (ALT)				2/18/25	NTS



SYSTEM:

R-16-30-M-A

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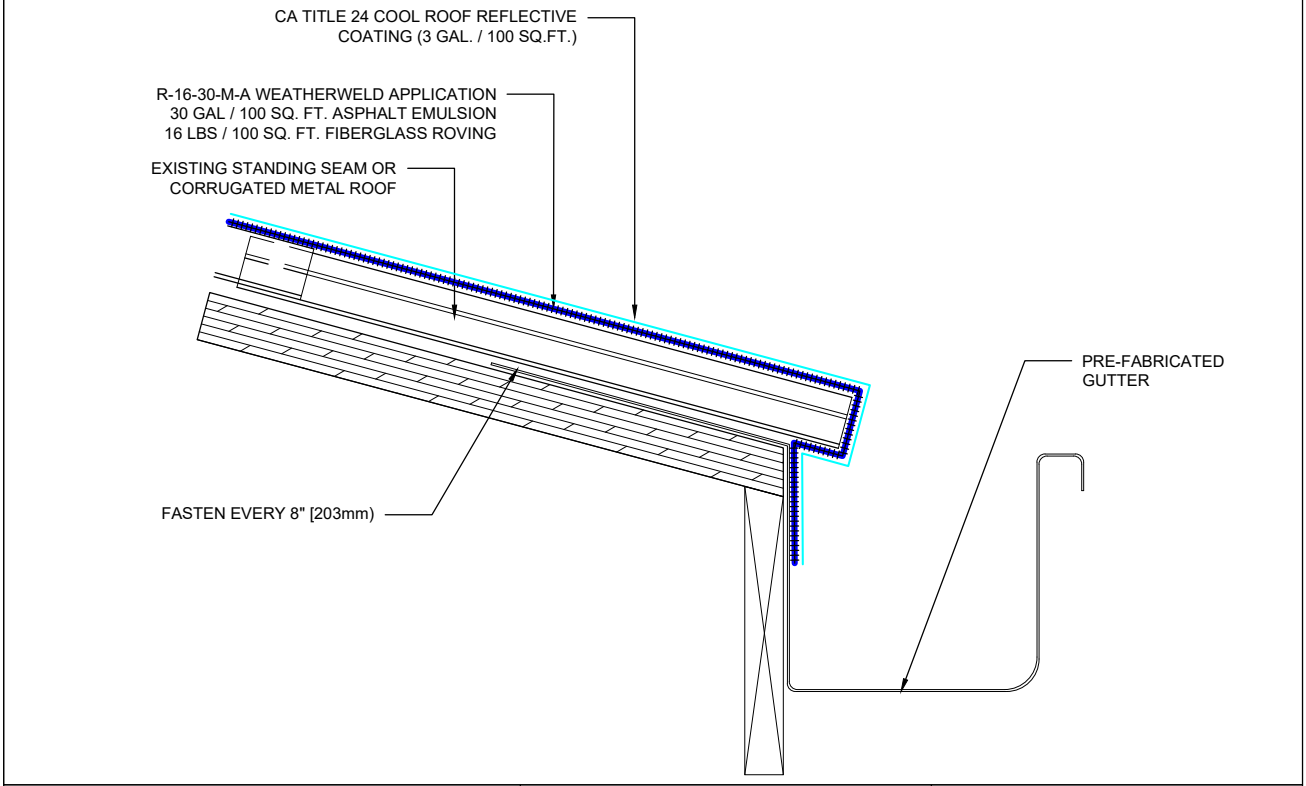
PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
EDGE FLASHING				2/18/25	NTS



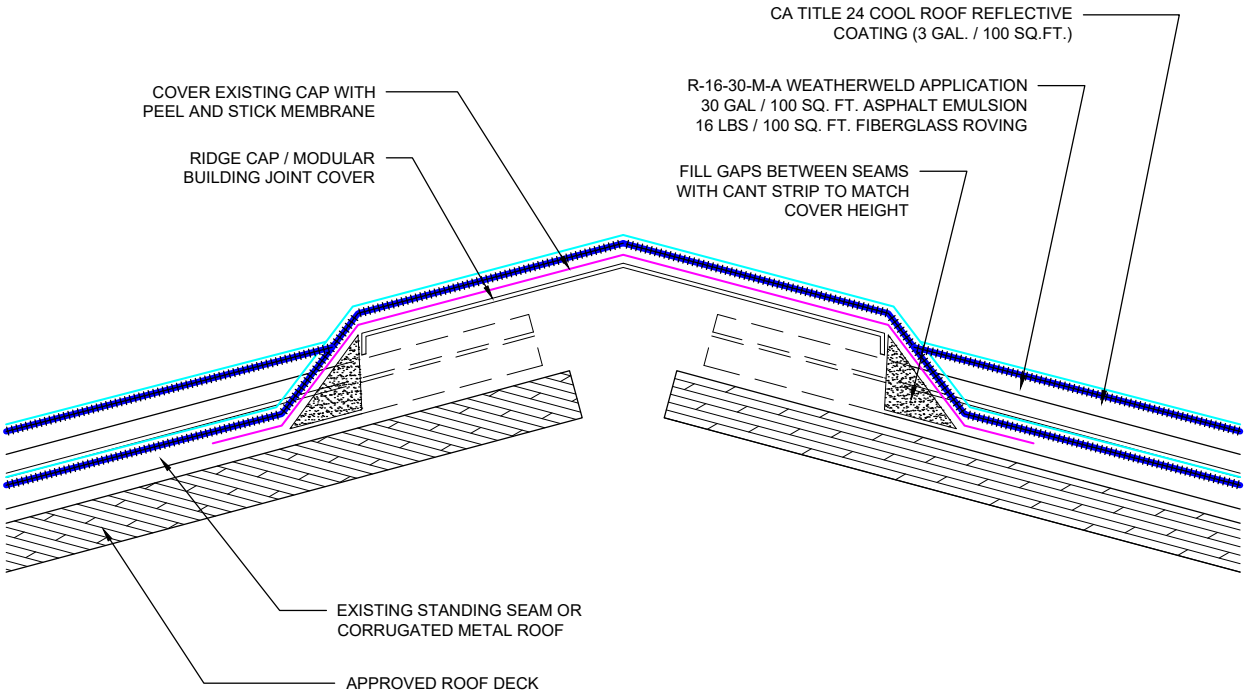
SYSTEM:

R-16-30-M-A

A DIVISION OF LIQUIFORM TECHNOLOGIES, INC.
9757 7th Street
Suite 803
Rancho Cucamonga, CA 91730-5297
(888) 440-3224
www.weatherweld.com

PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
GUTTER EDGE				2/18/25	NTS



SYSTEM:

R-16-30-M-A

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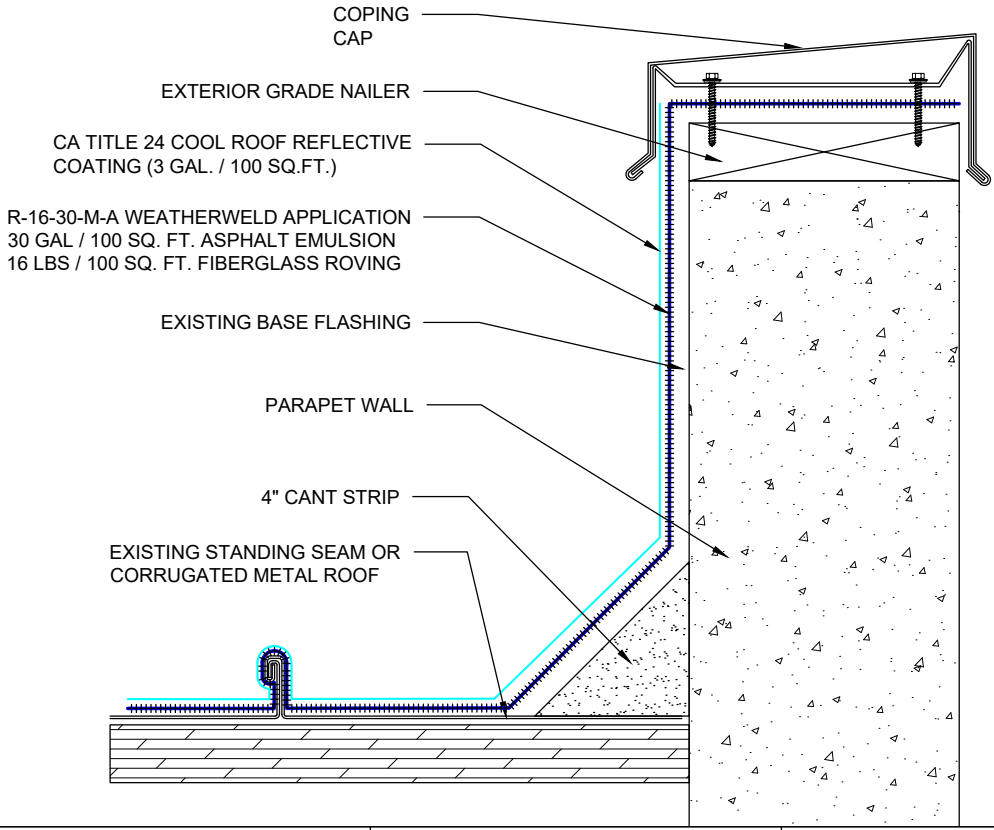
9757 7th Street
Suite 803
Rancho Cucamonga, CA 91730-5297
(888) 440-3224
www.weatherweld.com

PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
RIDGE / MODLINE				2/18/25	NTS



SYSTEM:

R-16-30-M-A

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9757 7th Street
Suite 803
Rancho Cucamonga, CA 91730-5297
(888) 440-3224
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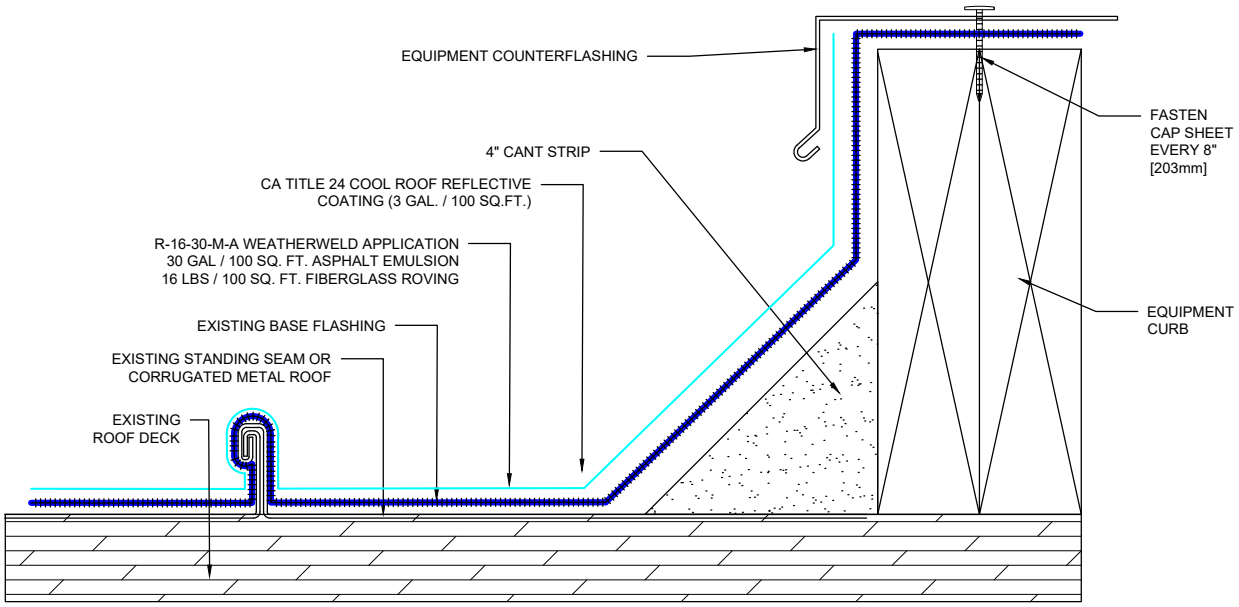
PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
PARAPET WALL FLASHING				2/18/25	NTS



SYSTEM:

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Rancho Cucamonga, CA 91730-5297
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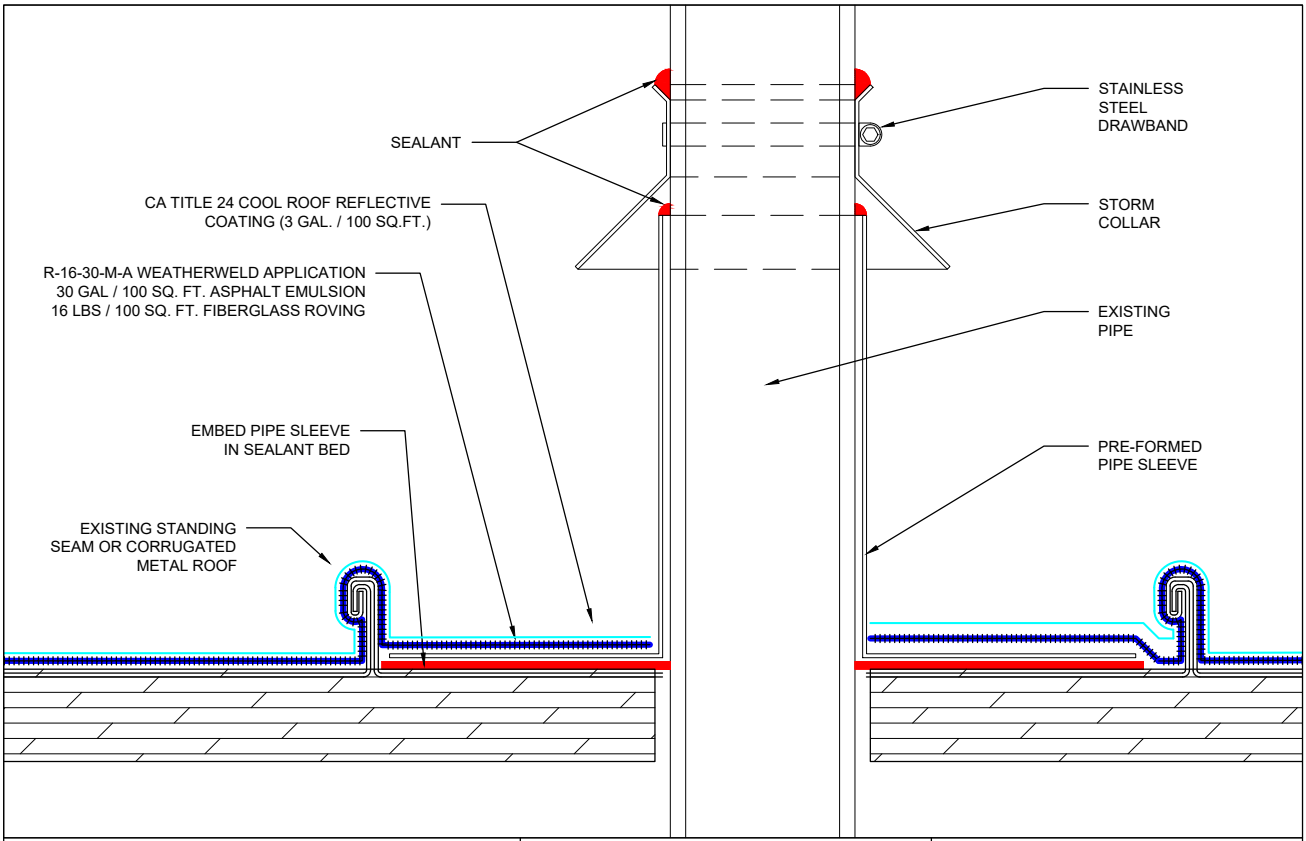
PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
EQUIPMENT PAD FLASHING				2/18/25	NTS



SYSTEM:

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PREPARED FOR:

DRAWING TITLE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:	SCALE:
PIPE FLASHING				2/18/25	NTS

WEATHERWELD
ROOFING MADE SIMPLE

WW471145

Asphalt Emulsion

WW471145 - Weatherweld Asphalt Emulsion is the primary waterproofing component of WeatherWeld roofing systems and is applied simultaneously with WeatherWeld fiberglass. A colloid mixture of water, asphalt, and bentonite clay, WeatherWeld asphalt emulsion is water carried, low odor, UV stable and 0 VOC.

PERFORMANCE

PROPERTY	VALUE
Appearance:	Thixotropic liquid
Color:	Black
Flash Point:	Non-Flammable.
Maximum VOC:	0 g/l Calculated
Solids Content by Volume:	49-53% per ASTM D 2697
Viscosity (Brookfield):	8,000-15,000 cPs per ASTM D 2196

CERTIFICATIONS

MORE INFO

Packaging:

- 1 Gallon Cans
- 5 Gallon Pails
- 55 Gallon Drums
- 275 Gallon Totes
- Bulk Delivery

WEATHERWELD
ROOFING MADE SIMPLE

WW471145 Asphalt Emulsion

Coverage:

30 to 45 gallons per 100 square feet depending on application.

Surface Preparation:

Surface must be clean, dry and in good condition. Remove all debris, loose gravel, and dirt from the roof by brooming or vacuuming and power-wash the entire roof.

Application:

Emulsion is spray applied using the WeatherWeld 3D Roof Printer. Emulsion is simultaneously applied with glass fibers to provide a seamless reinforced roof membrane.

Cleanup:

Clean wet coating from hands and tools with soap and water. If dry, clean tools with kerosene, paint thinner or mineral spirits.

Warnings:

Use appropriate gloves and other protective clothing when handling this product. EMPLOYERS should obtain a copy of the Material Safety Data Sheet (MSDS) from your supplier or directly from WeatherWeld at the toll free number or website below.

Warranty:

Notwithstanding its usage as a component in a No Dollar Limit (NDL) guaranteed roof system, we, the manufacturer, warrant only that this product is free of defects for a period of twelve (12) months from date of original purchase. Many factors may affect the final results obtained from this product, including but not limited to: weather, workmanship, application equipment and prior condition of the application substrate. Proof of purchase is required.

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY: THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FOR A PARTICULAR PURPOSE. MANUFACTURER SHALL HAVE NO LIABILITY OF ANY KIND BEYOND PRODUCT REPLACEMENT, INCLUDING FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM ANY DEFECTS OR ANY DELAYS CAUSED BY REPLACEMENT OR OTHERWISE. THIS LIMITED WARRANTY PROVIDES THE PURCHASER'S EXCLUSIVE REMEDY FOR ANY DEFECT IN THE PRODUCT.

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9757 7th St. #803 Rancho Cucamonga, CA 91730 | (888) 440-3224 | info@weatherweld.com

Revised: March 4, 2025 2:58 PM

WEATHERWELD
ROOFING MADE SIMPLE

WWFG100

Fiberglass Roving

WWFG100 - Fiberglass Roving is continuous filament glass fiber consisting of approximately sixty strands held together loosely in rope form by a special sizing. Roving is designed for spray application using the WeatherWeld 3D Roof Printer to provide reinforcement for WeatherWeld asphalt emulsion coating.

PERFORMANCE

PROPERTY	VALUE
Appearance:	Ropelike strands
Color:	White
Flash Point:	>212F
Maximum VOC:	0 g/l
Maximum VOS:	0 lbs/gal
Fiber Diameter:	6 microns, minimum
Yield:	207 yd/lb.
Tex:	2400 g/km.

CERTIFICATIONS

MORE INFO

Packaging:

- Each spool is capable of covering approximately 1350 square feet of area when applied at a rate of 3 lbs per 100 square feet.

WEATHERWELD
ROOFING MADE SIMPLE

WWFG100 Fiberglass Roving

Coverage:

Normal application rate is 30 gallons of WeatherWeld Asphalt Emulsion and 16 pounds of glass fiber per 100 square feet.

Surface Preparation:

Follow directions on surface preparation for WW471145 WeatherWeld Asphalt Emulsion Application

Application:

Roving is spray applied using the WeatherWeld 3D Roof Printer to provide reinforcement for WeatherWeld asphalt emulsion. Emulsion and glass fibers are chopped into a matrix of intertwined strands ranging in length from 1" to 24" and simultaneously applied providing a seamless reinforced roof membrane.

Cleanup:

Wash hands with soap and water when finished.

Warnings:

Use appropriate gloves and other protective clothing when handling this product. EMPLOYERS should obtain a copy of the Material Safety Data Sheet (MSDS) from your supplier or directly from WeatherWeld at the toll free number or website below.

Warranty:

Notwithstanding its usage as a component in a No Dollar Limit (NDL) guaranteed roof system, we, the manufacturer, warrant only that this product is free of defects for a period of twelve (12) months from date of original purchase. Many factors may affect the final results obtained from this product, including but not limited to: weather, workmanship, application equipment and prior condition of the application substrate. Proof of purchase is required.

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WEATHERWELD
ROOFING MADE SIMPLE

WW473049

Cool Roof Reflective Coating

WW473049 - Cool Roof Reflective Coating is a multi-purpose, acrylic, elastomeric coating for use over a variety of substrates including asphalt and metal roofing. It has unique “bleed blocking” properties which make it particularly suited for coating over asphalt surfaces, and exceeds several ASTM D6083 requirements for tensile strength, elongation, wet adhesion and weatherability.

PERFORMANCE

PROPERTY	VALUE
Appearance:	Liquid
Color:	White
Solar Reflectance (Initial / Aged):	0.83 / 0.75 per ASTM C 1549
Thermal Emittance	0.88 / 0.92 per ASTM C 1371
SRI	104 / 93 as Calculated
Initial Tensile Strength:	270 psi per ASTM D 6083
Initial Elongation:	260% per ASTM D 6083
Tear Resistance:	100 lbf / in per ASTM D 6083
1000-hr Accelerated Weathering:	No Cracking or Checking per ASTM D 6083
Elongation After Accelerated Weathering:	220% per ASTM D 6083
Permeance:	12 Perms per ASTM D 6083
Water Swelling:	15% per ASTM D 6083
Fungi Resistance:	No Growth per ASTM D 6083
Solids (Volume / Weight):	52% / 66% per ASTM D 6083
Viscosity:	110 ± 10 KU per ASTM D 6083

CERTIFICATIONS

MORE INFO

Packaging:

- 1 Gallon Cans
- 55 Gallon Drums
- 250 Gallon Totes

WW473049 Cool Roof Reflective Coating

Coverage:

1.5 gallons per 100 square feet.

Surface Preparation:

Surface must be clean, dry and in good condition. Remove all debris, loose gravel, and dirt from the roof by brooming or vacuuming and power-wash the entire roof.

Application:

Apply WeatherWeld acrylic top coating to WeatherWeld WW472049 Base Coat at a rate of 1.5 gallons per 100 square feet.

Cleanup:

Clean wet coating from hands and tools with soap and water.

Warnings:

Use appropriate gloves and other protective clothing when handling this product. EMPLOYERS should obtain a copy of the Material Safety Data Sheet (MSDS) from your supplier or directly from WeatherWeld at the toll free number or website below.

Warranty:

Notwithstanding its usage as a component in a No Dollar Limit (NDL) guaranteed roof system, we, the manufacturer, warrant only that this product is free of defects for a period of twelve (12) months from date of original purchase. Many factors may affect the final results obtained from this product, including but not limited to: weather, workmanship, application equipment and prior condition of the application substrate. Proof of purchase is required.

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY: THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FOR A PARTICULAR PURPOSE. MANUFACTURER SHALL HAVE NO LIABILITY OF ANY KIND BEYOND PRODUCT REPLACEMENT, INCLUDING FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM ANY DEFECTS OR ANY DELAYS CAUSED BY REPLACEMENT OR OTHERWISE. THIS LIMITED WARRANTY PROVIDES THE PURCHASER'S EXCLUSIVE REMEDY FOR ANY DEFECT IN THE PRODUCT.

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WEATHERWELD
ROOFING MADE SIMPLE

WW472049

Elastomeric Base Coat

WW472049 - WeatherWeld acrylic basecoat is a water-carried, acrylic elastomeric coating designed to facilitate proper adhesion of WeatherWeld Title 24 compliant Cool Roof Coating to WeatherWeld emulsion. WW472049 provides superior protection against ponding water and eliminates the need for costly replacement.

PERFORMANCE

PROPERTY	VALUE
Appearance:	Liquid
Color:	Buff
Wet Adhesion – Asphalt Emulsion:	5.2 pli per ASTM D 6083
Solids (Volume / Weight):	54% / 67.7% per ASTM D 6083
Viscosity:	110 ± 10 KU per ASTM D 6083
Drying Time:	4-8 hours depending on temperature and humidity.

CERTIFICATIONS

MORE INFO

Packaging:

- 1 Gallon Cans
- 5 Gallon Pails
- 55 Gallon Drums
- 250 Gallon Totes

WW472049 Elastomeric Base Coat

Coverage:

1.5 gallons per 100 square feet.

Surface Preparation:

Surface must be clean, dry and in good condition. Remove all debris, loose gravel, and dirt from the roof by brooming or vacuuming and power-wash the entire roof.

Application:

Apply WeatherWeld acrylic basecoat to finished WeatherWeld roof applications at a rate of 1.5 gallons per 100 square feet.

Cleanup:

Clean wet coating from hands and tools with soap and water.

Warnings:

Use appropriate gloves and other protective clothing when handling this product. EMPLOYERS should obtain a copy of the Material Safety Data Sheet (MSDS) from your supplier or directly from WeatherWeld at the toll free number or website below.

Warranty:

Notwithstanding its usage as a component in a No Dollar Limit (NDL) guaranteed roof system, we, the manufacturer, warrant only that this product is free of defects for a period of twelve (12) months from date of original purchase. Many factors may affect the final results obtained from this product, including but not limited to: weather, workmanship, application equipment and prior condition of the application substrate. Proof of purchase is required.

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY: THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FOR A PARTICULAR PURPOSE. MANUFACTURER SHALL HAVE NO LIABILITY OF ANY KIND BEYOND PRODUCT REPLACEMENT, INCLUDING FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM ANY DEFECTS OR ANY DELAYS CAUSED BY REPLACEMENT OR OTHERWISE. THIS LIMITED WARRANTY PROVIDES THE PURCHASER'S EXCLUSIVE REMEDY FOR ANY DEFECT IN THE PRODUCT.

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Warranty

WEATHERWELD

Div. Liquiform Technologies Inc.

40-YEAR NDL LEAK-FREE WARRANTY

COMPLETION DATE: _____ **ISSUE DATE:** _____

WARRANTY: Subject to warranty registration, payment in-full and installation in accordance with current printed installation specifications, Liquiform Technologies Inc., (WEATHERWELD) warranties to the original purchaser that the WEATHERWELD Seamless Reinforced Roof System (System) will be able to withstand ordinary wear of the natural elements in a leak-free condition for the period of forty (40) years, except for the exclusions, limitations and exceptions set forth in this Warranty. Upon proper notice, WEATHERWELD will diagnose and make repairs to the WEATHERWELD System at WEATHERWELD expense under the terms of this Warranty, as required to stop reported roof leakage found to be caused by defects in the WEATHERWELD System.

UNAPPROVED ALTERATIONS OR ADDITIONS: No contractor, distributor, consultant or any other person has authority to assume responsibility, liability or changes to WEATHERWELD specifications and/or agreements. WEATHERWELD shall not be responsible or liable for any change and/or amendment to the specifications and/or Warranty in regard to the project referenced herein, unless said change or amendment is approved in writing by WEATHERWELD.

RESPONSIBILITIES / EXCLUSIONS: The WEATHERWELD Seamless Reinforced Roof System is designed to keep areas to which the WEATHERWELD System Materials are applied in a leak-free condition. The System is not intended to take the place of any other building element such as, but not limited to, the underlying roof deck, base roofing structure, vapor retarder, drains, flashings, roof accessories, roof-mounted equipment, or any areas not covered with WEATHERWELD System Materials. This warranty shall not be applicable if, in the sole judgment of WEATHERWELD, any of the following occurrences shall be the cause of the reported claim of WEATHERWELD System roof leakage:

a) Natural disasters, earthquakes, lightning, hurricane force winds, hail, flood, environmental fallout, acts of vandalism or war.
b) Acts of negligence, misuse, accidents, falling objects, damage from roof top traffic or storage on the roof.
c) Damage caused by failure to conduct, or to have conducted, periodic maintenance inspections and roof clean-up as outlined in the WEATHERWELD maintenance manual for Owners.
d) Changes, alterations or repairs made to the System and not authorized by WEATHERWELD shall cause the area affected by the work to be excluded until authorized repairs meeting WEATHERWELD standards are completed.
e) Changes in aesthetics, thermal performance, reflectivity, or visual appearance of Roofing System materials.
f) With the exception of natural rainwater, accumulation of foreign materials or chemicals of any type including animal, plant, human, manufacturing or atmospheric.
g) Malfunction or breakdown of the base roofing structure other than System Materials.
h) Obstructed or inadequate roof drainage.
i) Waterproof defects in adjoining areas, flashings, walls, windows, roof-mounted equipment, ducts or other penetrations in the System extending above the flashings height of the WEATHERWELD System.

Both the examination and inspection of the WEATHERWELD System installation, plans and/or specifications by a WEATHERWELD employee, designated representative or Contractor, before or after the completion of the installation of the WEATHERWELD System, shall not constitute approval or waiver of the exclusions and conditions set forth in this Warranty, without written notice of such approval or waiver. No waiver by WEATHERWELD of any limitation, term or condition of this Warranty made as part of a warranty claim, shall operate as a waiver of any other limitation, term or condition applicable to this Warranty, on any other future claim, whether of similar or different nature. Owner agrees to provide, at Owner's expense, access to any areas requested in writing by WEATHERWELD and deemed to be relevant to the diagnosis and/or repair of the reported leak. Areas include, but are not limited to, building interior, exterior, adjoining areas and areas under roof-mounted equipment or other overburden.

REFLECTIVE COATINGS: WeatherWeld Reflective coatings are optional and may be installed for Energy Reflectivity and Building Code Compliance. WeatherWeld reflective coatings installed in the process of applying the WeatherWeld membrane are warranted for the first 12 years of the Leak Free NDL Warranty. Reflective coatings are not required, and do not require maintenance or re-coating for this Leak Free NDL warranty to remain in force.

NOTICE OF CLAIM: In the event a leak is discovered in the WEATHERWELD roof system, the Owner shall notify WEATHERWELD within ten (10) days of the discovery via receipt-acknowledged email or in writing at the contact's location listed below. Any claim to which notification is not made in a timely manner, without excuse, or to which access to the roof to diagnose the cause of the leakage is not provided, shall be deemed waived. Notification shall contain information of the location and severity of the leakage, access to the leak area and the personnel to contact. Notice to the Contractor, distributor or any other person does not substitute for notice to WEATHERWELD. Address written correspondence to: WeatherWeld – A Division of Liquiform Technologies Inc., 9757 7th St. #803, Rancho Cucamonga, CA 91730. Phone (888) 440-3224

SERVICE: Upon proper notification, WEATHERWELD shall schedule a diagnosis inspection of the leakage, prepare a written report of findings and commence repair of the defects that are WEATHERWELD's responsibility under this Warranty in a timely manner, weather and schedules permitting. Should the cause of the leakage be able to be corrected during the initial service call, the Owner agrees that WEATHERWELD is hereby granted permission to make such corrections, provided there is no cost to the Owner. Should leakage documented by WEATHERWELD be caused from items that are the upkeep responsibility of the Owner under this Warranty, the Owner agrees to have repairs made to such items in a timely manner, and before requesting any additional service work made by WEATHERWELD on the leakage claim. Should WEATHERWELD repeat the process without stopping the WEATHERWELD responsible leakage, WEATHERWELD shall retain a knowledgeable outside consultant at WEATHERWELD expense to help locate the source of the leakage. WEATHERWELD and the Owner agree to complete the respective repairs made in the Consultant's report. The Owner agrees that WEATHERWELD shall have exclusive control over the diagnosis and repair to any WEATHERWELD System component found to be WEATHERWELD responsibility under this Warranty.

LIMITATIONS OF LIABILITY: This Warranty is expressively in lieu of any other guarantees and/or warranties, expressed or implied, including any implied warranty of merchantability, or fitness for a particular purpose, and any other obligation or liability on the part of WEATHERWELD whether the claim against WEATHERWELD is based upon strict liability, negligence, breach of warranty, or any other theory or cause of action. This Warranty contains all of the provisions of your remedies from WEATHERWELD. In no event shall WEATHERWELD be liable for consequential or incidental damages of any kind, including damages to the building or its contents. This Warranty does not cover the cost of removal and/or replacement of any other building component, roof-mounted equipment, overburden or item excluded from Warranty coverage listed above. WEATHERWELD shall be discharged of all further obligations upon the occurrence of any of the following: (a) expiration of this warranty without written renewal or transfer, (b) damage to the System from causes listed in "EXCLUSIONS/RESPONSIBILITIES" or (c) failure to comply with any other sections of this Warranty. Unresolved Warranty claims shall be settled by binding arbitration in the State of California (as exclusive venue), administered by the American Arbitration Association under its Commercial Arbitration Rules, and judgment on any award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

3-PART SPECIFICATION

This specification serves as a comprehensive document outlining the materials, methods, requirements, and quality assurance guidelines for a WeatherWeld roofing system. The document plays a crucial role in ensuring consistency, durability, and compliance with building codes and industry standards.

CONTRACTORS:

Reading and understanding this specification helps to ensure a successful and high-performing roofing installation.

CONTRACTOR – As a courtesy, we have highlighted critical areas of the document

But it is **your responsibility** to ensure that ALL project requirements are fulfilled, so be sure that you…

READ THIS ENTIRE DOCUMENT THROUGHLLY

Clarity and Standardization

The primary purpose of this specification is to provide clear guidelines for all parties involved in this project. Using the standardized CSI 3 Part format reduces miscommunication and errors during construction.

Material and Performance Requirements

This specification establishes detailed material and performance criteria, ensuring that the selected roofing system meets the project's needs. By setting these criteria, the specification helps project teams select high-quality materials that comply with local building codes and industry standards, such as ASTM International (ASTM), Underwriters Laboratories (UL), Factory Mutual Global (FM Global), and the National Roofing Contractors Association (NRCA).

Quality Control and Compliance

A well-defined roofing specification ensures that the installation process follows strict quality control measures to meet safety and performance expectations. It includes:

- *Pre-installation requirements (surface preparation, weather conditions, and material storage guidelines)*
- *Step-by-step installation procedures to ensure proper adhesion, fastening, and sealing.*
- *Testing and inspection protocols, such as fire resistance and wind uplift testing.*
- *Warranty requirements from manufacturers and contractors.*

By establishing these controls, the roofing specification helps prevent costly failures, such as leaks, material degradation, or structural damage.

Project Coordination and Accountability

A roofing specification clarifies roles and responsibilities, ensuring that architects, contractors, and manufacturers are aligned throughout the project. It provides:

- *A clear roadmap for contractors to follow during installation.*
- *Manufacturer-approved guidelines to ensure proper use of products and appropriate installation methods.*
- *A reference point for architects and engineers to verify compliance with design intent.*

The intent of this specification is to provide a clear, standardized, and detailed framework for designing and installing a high-quality roofing system. It ensures appropriate materials, code compliance, quality control, and project coordination.

SECTION 07 51 23

GLASS FIBER REINFORCED ASPHALT EMULSION ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Seamless Fluid Applied Composite Roof Systems.

B. Roof Flashings.

C. Roof Accessories.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 07 62 00 - Sheet Metal Flashing and Trim: Cap flashing and expansion joints.

C. Section 07 71 00 - Manufactured Roof Specialties: Counter flashing, gravel stops, fascia, scuppers, gutters, and downspouts.

D. Section 07 72 00 - Roof Accessories.

E. Section 22 30 00 - Plumbing Equipment: Adjacent Piping Vents and Drains.

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

1.3 REFERENCES

A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.

B. American Society of Civil Engineers (ASCE) - ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

C. ASTM International (ASTM):
1. ASTM C 728 - Standard Specification for Perlite Thermal Insulation Board.
2. ASTM C 1153 - Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging.
3. ASTM D 570 - Standard Test Method for Water Absorption of Plastics.
4. ASTM D 1079 - Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.
5. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
6. ASTM D1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
7. ASTM D 2523 - Standard Practice for Testing Load-Strain Properties of Roofing Membranes.
8. ASTM D 3019 - Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, and Fibered.
9. ASTM D 3909 - Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules.
10. ASTM D 4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.

11. ASTM D 4830 - Standard Test Methods for Characterizing Thermoplastic Fabrics Used in Roofing and Waterproofing.
12. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
13. ASTM E 548 - Standard Guide for General Criteria Used for Evaluating Laboratory Competence.
14. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

D. Underwriters Laboratories (UL): ANSI/UL 790 - Standard Test Methods of Roof Coverings.

E. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide.

F. CRRC - Cool Roof Rating Council.

G. California Building Standards Code - Title 24.

H. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to Work in this Section.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide watertight roofing membrane and flashing system that does not permit the passage of water, resists uplift pressures specified in this section, and is capable of withstanding thermally induced movement and exposure to weather without failure.

B. Energy Performance:
1. Low-Slope Roofs: Provide a roofing system with Solar Reflectance Index not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.
2. Roof membrane finish must comply with current California Title 24 Part 6 requirements:
   a. Minimum three (3) year aged solar reflectance: 0.55.
   b. Minimum Thermal Emittance: 0.75.

C. Wind Resistance: Provide roofing membrane, base flashings and component materials that comply with requirements in FMG 4450, FMG 4470, UL 580 or UL 1897 as part of a membrane roofing system.
1. Wind Load Resistance: 45 psf.

D. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings from the applicable testing and inspecting agency.
1. Exterior Fire-Test Exposure: Class A ASTM E 108 for application and roof slopes indicated.

1.6 SUBMITTALS

A. Submit in accordance with Section 01 30 00 - Administrative Requirements.

B. Product Data: For each product note in this section, submit printed or digital copies of the manufacturers product information including the following:
1. Printed affirmation of performance characteristics.
2. Roofing system design.
3. Application Instructions.
4. Technical Data Sheets.
5. Material Safety Data Sheets.

C. LEED Submittals:
1. Product Data for Credit SS 7.2: For roof materials, indicating that roof materials comply with Solar Reflectance Index requirement.

2. Product Data for Credit EQ 4.1: For adhesives and sealants, including printed statement of VOC content.

D. Warranty Documents: Provide sample copies of the Manufacturer's standard form outlining the terms and conditions of the warranty specified for the Work in this section.

E. Shop Drawings: Provide plan, elevation, section, and isometric drawings outlining waterproofing conditions at transitions, terminations, penetrations and attachments to adjacent work.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of the roofing system.

G. Thermographic Roof Evaluation Reports: Where existing roofs are to remain in place and be encapsulated or "re-roofed", submit evaluation reports provided by a Certified Infrared Thermographer.

H. Research & Evaluation Reports: For components of the roofing system.
1. Include reports from UL, ICC, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction, stating entire system meets fire-test-response characteristics listed.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Installer must be authorized by roofing system manufacturer to perform all Work specified in this section and provide an executed manufacturer's warranty.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing for roofing system identical to that used for this project.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

D. Moisture Analysis: Where existing roofs are to remain in place and be encapsulated or "re-roofed", it is the responsibility of the contractor to perform a moisture analysis in accordance with ASTM C 1153 to determine suitability.

E. Source Limitations:
1. Obtain Composite Roof Membrane components from a single manufacturer.
2. Roll goods, sealants and other secondary products must meet or exceed the stated performance values and design considerations noted in this Section.
3. Upon request, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.8 PRE-INSTALLATION CONFERENCE

A. Prior to commencement of Work, conduct a conference at project site. Comply with the requirements of Section 01 31 00 - Project Management and Coordination. Review and affirm methods and procedures related to the work specified in this section, including but not limited to the following:
1. Meet with owner, architect, owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including the manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs and condition of other construction that will affect roofing system.

7. Review governing regulations and requirements for insurance and certificates, if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site in original containers, with seals unbroken, and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage. For bulk-delivered materials, identify manufacturer’s name and product designation with delivery receipts and material manifests.

B. Protect roofing materials from physical damage and from deterioration due to sunlight, moisture, soiling and other sources. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

C. Store liquid materials in their original, undamaged containers in a clean, dry, and protected location, between 50 degrees F to 80 degrees F (10 degrees to 26.7 degrees C). Ensure jobsite storage is in a shaded and well-ventilated area, away from open flame or welding sparks. Indoor Storage is recommended.

D. Do not stockpile materials on roof without first obtaining acceptance from the Architect.

E. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

1.10 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit the roofing system to be installed according to manufacturer's written instructions and warranty requirements.

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

C. The minimum temperature for application of WeatherWeld Emulsion and WeatherWeld Acrylic Coating is 50 degrees F (10 degrees C) and rising.

D. Product application must not be performed when rain or other ambient moisture conditions such as fog or heavy dew are possible within 72-hours of completion. Roof surface must be a minimum of 6 degrees F (3 C) above the dew point and rising.

E. Safety Data Sheets (SDS) must be on location during transportation, storage, and application of materials.

F. Schedule and phase work such that new roofing materials are not subject to construction traffic. Protect new roof sections and inspect for damage upon completion.

G. When applying materials with spray equipment, take precautions to prevent overspray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles, or other property.

H. The surface on which the roof system is applied must be clean, smooth, dry, and free of projections or contaminants that could prevent proper application of or be incompatible with the new installation. Correct all sharp edges, foreign materials, oil, and grease.

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

J. 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.

1.11 WARRANTY

A. No Dollar Limit (NDL) Warranty: Provide Manufacturer's written and signed No Dollar Limit (NDL) warranty document, affirming coverage in the event of a leak in the roofing membrane or base flashings applied within the scope of work outlined in this section.
   1. Warranty Period: Forty (40) years from date of Substantial Completion.
   2. Coating Warranty: Twelve (12) years from date of Substantial Completion.

B. Project Warranty: Submit roofing installer's signed and executed warranty document affirming coverage of all work of this Section, including but not limited to insulation, cover board, fasteners, base sheet, roofing membrane, base flashings, and walkway products.
   1. Warranty Period: Two (2) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Liquiform Technologies Inc – WeatherWeld.
   1. Within 72 hours of the initial site visit, equivalent systems from The Garland Company or Tremco Roofing may be considered, provided the systems meet warranty requirements, physical characteristics and do not use solvents or fire during installation.

B. Acceptable Manufacturer: _____.

2.2 COMPOSITE MEMBRANE SYSTEM

CONTRACTOR – Confirm the roof membrane system to be installed

A. General:
   1. Roofing system must comply with 2022 CBC, Chapter 15.
   2. Subject to compliance with requirements, provide the specified membrane configuration, applied over existing low slope roofs.

B. Basis of Design: R-16-30-M-A, by WeatherWeld. Composite roof applied over existing metal roofing with CA Title 24 compliant cool roof surface coating.
   1. Membrane Properties:
      a. Total Weight: 1.5 pounds per square foot (0.68 kg) dry.
      b. Nominal Thickness: 250 mil Dry Film Thickness (DFT).
      c. Minimum Strength: 600 psi (4136 kN/m2) per ASTM D 2370.
      d. Minimum Elongation: 10% per ASTM D 4830.
      e. Minimum Puncture Resistance: 700 lb. (318 kg) per ASTM D 4830.
      f. Water Absorption: 1% max by weight per ASTM D 570.
      g. Fire Rating: UL Class “A” assembly.
   2. Membrane Configuration:
      a. Fiberglass Roving: 16 lbs. per 100 square feet.
      b. Asphalt Emulsion: 30 gallons per 100 square feet.
      c. CA Title 24 Cool Roof Reflective Coating: 3 Gallons per 100 square feet.

2.3 COMPOSITE MEMBRANE MATERIALS

A. Asphalt Emulsion: WeatherWeld Asphalt Emulsion meeting or exceeding the requirements of ASTM D1227. WW471145, by WeatherWeld.
   1. VOC Content (Maximum): 0 g/l.
   2. Wet Weight: 8.7 Lbs./Gal. (1041 g/l).
   3. Dry Weight: 4.35 Lbs./Gal. (521 g/l).
   4. Solids Content by Volume: 49-53%.

B. Fiberglass Reinforcement (Type E): Multi-end continuous fiberglass roving designed for spray operations. WWFG100, by WeatherWeld.
   1. Yield: 207 yd/lb.
   2. Tex: 2400 g/km.
   3. Spool Weight: 41.9 LB (19kg).

C. Cool Roof Reflective Acrylic Coating:
   1. Basecoat: WW473049, by WeatherWeld.
      a. Solids Content by Volume: 54%.
      b. VOC Content (maximum): <50 g/l.
      c. Weight: 7.7 - 8.7 lbs./Gal. (922 – 1041 g/l).
   2. Topcoat: CA Title 24 Cool Roof Reflective Coating as supplied by the manufacturer of the membrane system. WW472049, by WeatherWeld.
      a. Solids Content by Volume: 50-54%.
      b. VOC Content (maximum): <50 g/l.
      c. Weight: 7.7 - 8.7 lbs./Gal. (922 – 1041 g/l).
      d. Solar Reflectance:
         1) Initial: 0.83.
         2) 3 Year Aging: 0.75.
      e. Thermal Emittance:
         1) Initial: 0.88.
         2) 3 Year Aging: 0.92.
      f. Solar Reflectance Index (SRI):
         1) Initial: 104.
         2) 3 Year Aging: 94.

2.4 SHEET MATERIALS

A. Self-Adhering Membrane: SBS-modified membrane sheet with adhesive backing. WW474049, by WeatherWeld.
   1. Elongation: 85%.
   2. Thickness: 75 mils.
   3. Weight: 3 oz/ sq. yd.
   4. Roll Width: 36 inches.

2.5 ADHESIVES AND SEALANTS

A. Flashing Cement: Trowel grade SBS-modified flashing cement made from heavy-bodied asphalt reinforced with organic fibers.
   1. VOC Content (Maximum): 290 g/l.
   2. Weight per Gallon: 8.25 – 9.25 Lbs (988 – 1107 g/l).

B. Asphalt Primer: Asphalt based surface primer suitable for application on metal, masonry and concrete surfaces. Meets or exceeds the requirements of ASTM D 41.

C. Polyurethane Sealant: Moisture-cured, single-component, polyurethane-based, non-sag elastomeric sealant. Meets ASTM C920, Type S, Grade NS, Class 35; Sikaflex-1A, manufactured by Sika.

2.6 SHEET METAL, FLASHING AND TRIM

CONTRACTOR – Confirm the type of flashings required on this project.

A. Metal Flashing Sheet: 24 Ga. Galvanized sheet metal flashing as specified in Division 07 Section "Sheet Metal Flashing and Trim."

B. Flashing Collar: 24 Ga. Galvanized sheet metal collar for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.

C. Pitch Pans: Rain Collar 24 gauge stainless or 20oz (567gram) copper. All joints must be welded or soldered to remain watertight.

D. Fabricated Flashings: As specified in Section 07 62 00.
   1. Fabricated flashings and trim must conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Association "Copper in Architecture - Handbook" as applicable.

E. Manufactured Roof Specialties: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Section 07 71 00.
   1. Manufactured roof specialties must conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

F. Fasteners: Factory-coated steel fasteners and metal meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength and acceptable to roofing system manufacturer.

2.7 ACCESSORIES

A. General: Roofing accessories recommended by manufacturer for intended use and compatible with membrane roofing.

B. Fasteners:
   1. Screws and Plates: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate and acceptable to roofing system manufacturer.
   2. Cap head Nails: Galvanized steel nails with a ring or deformed shank and a minimum 1 in. cap head for fastening base sheets to wood decks.
   3. Base Sheet Fasteners: Pre-assembled G-90 galvanized fastener with 1 in by 1 1/4 in head and 2.75 in diameter galvalume plate. For use attaching anchoring base sheets directly to lightweight concrete and poured gypsum decks.

C. Cant Strips: ASTM C 728 perlite insulation board.

D. Wood Nailer Strips: Comply with requirements in Division 06 Section “Miscellaneous Carpentry."

E. Tapered Edge Strips: ASTM C 728 perlite insulation board.

F. Substrate Joint Tape: 6 inch (152mm) or 8 inch (203mm) wide, coated, glass-fiber joint tape.

G. Anti-Skid Granules: Granules specifically designed for anti-skid purposes and compatible with all coatings specified in this section.

PART 3 EXECUTION

3.1 EXAMINATION

CONTRACTOR – Verify suitability of the roof surface or deck before proceeding with work.

A. Compatibility, verify all materials including existing roof are compatible.
   1. Verify existing roof systems are NOT coated with silicone style coatings.
   2. Verify existing roof systems are NOT PVC single ply membrane.
   3. Verify the following for installations over lightweight insulating concrete (LWIC):
      a. Decks must be a minimum of 2 inches (51 mm) thick with a compressive strength of no less than 125 psi (0.86 MPa) and a density of 22 pcf (352 kg/sm).
      b. Slopes must not exceed 1 inch per foot (83 mm/m).
      c. Membrane and insulation may not be applied directly to lightweight concrete. Mechanically attach an approved specified base sheet prior to application of subsequent insulation or membrane.

B. Examine substrates, work areas and field conditions, for compliance with the following requirements and other conditions which may affect the performance of the roofing system. Verify the following conditions:
   1. Surfaces are clean, rigid, dry, smooth, and free from cracks, holes, blisters, debris and sharp changes in elevation greater than 1/4 inch (6mm).
   2. The deck is free of depressions, waves or projections and properly sloped to drains, valleys, eaves, scuppers, or gutters.
   3. Roof openings and penetrations are adequately installed, and that roof drains are securely clamped in place.
   4. Cant strips, blocking, curbs and nailers are securely anchored and installed in accordance with manufacturers requirements.
   5. Drains and scuppers are free of ruptures and sealed on all four sides on the exterior face of walls.
   6. Surface plane flatness and fastening of roof deck complies with manufacturers requirements.
   7. Concrete curing compounds and any chemicals that may impair adhesion of roofing components have been removed.
   8. Existing roof assemblies are dry, confirmed by conducting infrared thermal scans.
   9. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method in accordance with ASTM D 4263.

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

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

3.2 PREPARATION

CONTRACTOR – Review requirements for preparing the JOBSITE.

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

B. Prior to application, clean application surfaces with water. Where wash water must be reclaimed due to contamination concentrations, roof water collection design of the building or local ordinances. Conform to local requirements for disposal of wash water.

C. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation in accordance with the roofing system manufacturer's written instructions.

D. Remove or correct all sharp projections which may interfere with the integrity of the membrane.

E. Protect roof drains and edges during construction to prevent materials from entering roof drains and conductors or migrating onto surfaces of adjacent construction. Remove roof drain plugs when no work is taking place or when rain is forecast.

F. Protect adjacent materials and lower paving, prior to starting work, in accordance with roofing system Manufacturer’s instructions.

3.3 EXISTING ROOF PREPARATION

CONTRACTOR – Review requirements for preparing the EXISTING ROOF.

A. Suitable roofs for recover must be free of dust, dirt, debris, and any contaminants which may affect the performance of the new roof. Areas of substantial deck deflection or membrane imperfections must be corrected prior to commencement of Work.

B. Single-ply PVC roofing and silicone coatings are not suitable substrates. Remove the existing roof system in areas where either is present.

C. Any existing substrates and insulation must be dry. Wet or deteriorated areas of insulation and substrate must be removed and replaced with new materials.

D. Comply with local building codes where requirements exceed those listed.

3.4 ROOF MEMBRANE INSTALLATION - GENERAL

CONTRACTOR – Review requirements for installing the OVERALL ROOF SYSTEM.

A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA and NRCA.

B. Commence installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Cooperate with testing and inspecting agencies engaged or required to perform services during roofing system installation.

D. Coordinate installation to ensure that materials that will not be permanently exposed are protected from moisture and covered at the end of each workday.
   1. Provide tie-offs at the end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning work on adjoining roofing.

E. Substrate Joint Penetrations: Where exceeding 1/4 inch in width (6mm), tape joints to inhibit roofing cement from penetrating substrate, entering building, or damaging roofing system components or adjacent building construction.

3.5 FLASHING INSTALLATION

CONTRACTOR – Review requirements for application around FLASHING DETAILS.

A. General:
   1. Refer to the manufacturer’s application manual for flashing specific details.
   2. All flashings must have a minimum of 536 mil of fiberglass composite upon completion of the installation.
   3. Fabricated flashings and trim must conform to the requirements found in the current SMACNA "Architectural Sheet Metal Manual".
   4. Manufactured Roof Specialties: Manufactured copings, fascia, control joints, and related flashings and trim must conform to the requirements found in the SMACNA "Architectural Sheet Metal Manual" and/or the National Roofing Contractors Association "Roofing and Waterproofing Manual".
   5. Any joint in the structure intended to allow for movement must be divorced from the seamless reinforcement composite.
      a. Install an 18 inch (457mm) wide slip sheet consisting of inverted (mineral-side down) cap sheet, laid dry over the joint and extending 36 inches (914mm) at each end.
      b. Over the slip sheet, solidly adhere a 36 inch (914mm) polyester ply in 4 gallons per 100 square feet (1.63 L/m2) of emulsion and reinforce with 536 mil of seamless composite.

B. Base Flashings and Cant Strips: Minimum 3 inch (76mm) cant strips must be installed at base flashings, walls, and curbs. Miter cants at ends to provide a smooth transition and set in adhesive.

C. Metal Drip Edges:
   1. Inspect nailers for proper attachment and configuration.
   2. Run one ply of self-adhering membrane 2 inches (51mm) over the edge. Assure coverage of all wood nailers.
   3. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
   4. Install new metal edge, securing to cleat and set in bed of roof cement. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.

5. Apply primer to metal edges at a rate of 100 square feet per gallon and allow to dry.
6. Adhere a continuous strip of self-adhering membrane to the metal flange 2 inches (51mm) from the edge and extend 6 inches (152mm) onto the existing roof surface.
7. Coordinate placement to ensure membrane laps do not coincide with metal laps.
8. Reinforce with 500 mil of seamless composite. Extend the field application of composite to the outside edge of the metal flashing.
9. Apply composite flush with the edge to ensure that water does not pond.

D. Roof Edge with Gutter:
1. Inspect nailers for proper attachment and configuration.
2. Install one ply of self-adhering membrane 2 inches (50mm) over the edge. Assure coverage of all wood nailers.
3. Install gutter and strapping.
4. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
5. Install new metal edge, securing to cleat and set in bed of roof cement. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.
6. Apply primer to metal edges at a rate of 100 square feet per gallon and allow to dry.
7. Adhere a continuous strip of self-adhering membrane to the metal flange 2 inches (51mm) from the edge and extend 6 inches (152mm) onto the existing roof surface.
8. Coordinate placement to ensure membrane laps do not coincide with metal laps.
9. Reinforce with 500 mil of seamless composite. Extend the field application of composite to the outside edge of the metal flashing.
10. Apply composite flush with the edge to ensure that water does not pond.

E. Scuppers:
1. Inspect nailers for proper attachment and configuration.
2. Run one ply of self-adhering membrane 1 inch (25mm) over the edge. Assure coverage of all wood nailers.
3. Install pre-formed scupper in a 1/4 inch (6 mm) bed of roof cement. All seams and corners must be soldered, and scupper must have a minimum 4 inch (101 mm) flange. Prime scupper at a rate of 100 square feet per gallon and allow to dry.
4. Fasten scupper flange to nailers every 3 inches (76mm) o.c. staggered.
5. Adhere a continuous strip of self-adhering membrane to the metal flange approximately 2 inches (51mm) from the edge and 6 inches (152mm) onto the existing roof surface.
6. Coordinate placement to ensure membrane laps do not coincide with metal laps.
7. Reinforce with 500 mil of seamless composite. Extend the field application of composite to the outside edge of the metal flashing.
8. Apply composite flush with the edge to ensure that water does not pond.
9. scupper edge must be turned down a minimum of 1 inch (25mm) at outside edge of wall and sealed.

F. Coping Caps:
1. Attach tapered nailer to top of wall with a minimum slope of 1/4 per foot.
2. Cover nailer and all exposed wood with self-adhering membrane, extending 2 inches (50mm) over edges.
3. Reinforce with 500 mil of seamless composite. Extend field application of composite to the outside edge of wall.
4. Install continuous cleat and fasten at 6 inches (152 mm) o.c. to outside wall.
5. Install new metal coping cap hooked to continuous cleat.
6. Overlap joints a minimum of 4 inches (101 mm) and install in a 1/4 inch (6 mm) bed of polyurethane sealant.
7. Fasten inside of cap 24 inch (609 mm) o.c. with approved fasteners and neoprene washers.
8. Install 6 inch (152mm) strips of self-adhering membrane, extending 3 inches (76mm) onto each side of joint. Extend down front and back face of coping.
9. Install coping cap per manufacturer's recommendations.

G. Surface Mounted Counterflashing:

1. Set counterflashing in adhesive and fasten above flashing at 8 inches (203 mm) o.c.
2. Install sealant at top of counterflashing.

H. Recessed Counterflashing:
1. Cut a receiver groove into concrete masonry unit wall located at the first horizontal grout joint above base flashing termination.
2. Secure recessed “Reglet” type counterflashing with expansion fasteners.
3. Install sealant at top of counterflashing.

I. Skirted Counterflashing:
1. Where existing counterflashing does not adequately cover finished base flashings, a “skirt flashing” may be installed.
2. Specific applications must be approved by the Manufacturer prior to application and conform with manufacturers’ most current construction details for the specific application.
3. Flashing must extend at least 1 1/2 inches (39mm) behind existing counterflashing and project no greater than 3 inches (76mm) past the bottom edge. Vertical seams must overlap a minimum of 6 inches (152mm).
4. All metal edges which may come in contact the base flashing must be hemmed to protect the installed membrane.
5. Mechanically fasten skirt flashing to existing counterflashing using self-tapping screws with neoprene washers.

J. Expansion Joints:
1. Install compressible insulation in neoprene cradle.
2. Apply self-adhering membrane sheet to cover expansion joint curb and extend 9 inches (228 mm) onto the field of the roof.
3. Reinforce with 500 mil of seamless composite. Extend application of composite to the top of expansion joint curbs.
4. Install pre-manufactured expansion joint cover. Fasten sides at 12 inches (609 mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with sealant between metal covers.

K. Area Dividers:
1. Apply self-adhering membrane sheet to cover expansion joint curb and extend 9 inches (228 mm) onto the field of the roof.
2. Reinforce with 500 mil of seamless composite. Extend application of composite to the top of area divider curbs.
3. Install pre-manufactured expansion joint cover. Fasten sides at 12 inches (609 mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with sealant between metal covers.

L. Equipment Supports:
1. Apply self-adhering membrane sheet to cover expansion joint curb and extend 9 inches (228 mm) onto the field of the roof.
2. Reinforce with 500 mil of seamless composite. Extend application of composite to the top of the support curb.
3. Install pre-manufactured cover. Fasten sides at 24 inches (609 mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with sealant between metal covers.
4. Set equipment on neoprene pads and fasten as required by equipment manufacturer.

M. Curbs:
1. Apply self-adhering membrane sheet to cover expansion joint curb and extend 9 inches (228 mm) onto the field of the roof.
2. Reinforce with 500 mil of seamless composite. Extend application of composite to the top of the curb.
3. Install pre-manufactured counterflashing with fasteners and neoprene washers.

N. Skylights, Smoke Vents and Roof Hatches:
1. Apply self-adhering membrane sheet to cover expansion joint curb and extend 9 inches (228 mm) onto the field of the roof.

2. Reinforce with 500 mil of seamless composite. Extend field application of composite to the top of the curb.
3. Install pre-manufactured unit in accordance with Manufacturers' recommendations.
4. Where required by local code, install OSHA compliant, compression mounted skylight protection screens per skylight manufacturers' written instructions.

O. Pipe Penetrations: All pipe penetrations must be turned downward into the top of the pipe, or sealed and flashed with a storm collar approximately one inch (25mm) above the top of the flashing and secured with a draw band and approved sealant.

P. Heat Stacks:
1. Run roof system over the entire surface of the roof. Seal the base of the stack with sealant.
2. Prime flange of new sleeve. Install properly sized sleeves set in 1/4 inch (6 mm) bed of roof cement.
3. Reinforce with 500 mil of seamless composite.
4. Install new storm collar. Weld or install stainless steel draw brand and caulk.

Q. Pitch Pockets:
1. Place the pitch pocket over the penetration and prime all flanges.
2. Apply strips of self-adhering membrane around all sides of pitch pocket, extending 6 inches (152 mm) onto the field of the roof.
3. Fill pitch pocket halfway with non-shrink grout.
4. Encapsulate entire pitch pocket with 500 mil of seamless composite.
5. Apply caulk joint between roof system and pitch pocket with roof cement.
6. Place a water shedding bonnet over the top of the pitch pocket, clamp the top with a drawband, and apply sealant.

R. Pipe Supports: Install supports in accordance with Manufacturers' guidelines. Traffic pads must be installed under pipe supports and fasteners must not penetrate the roofing membrane.
1. All pipes 2 inches (51mm) in diameter or less may be supported with polymer pipe supports spaced no greater than 8 feet (2438mm) on center.
2. All pipes over 2 inches (51mm) in diameter must be supported with movable pipe hangers or other support system approved by the roofing system Manufacturer.

S. Sloped Roof Transitions: Remove roofing material extending a minimum of 24 inches (610mm) onto steep-slope roofs.
1. Install self-adhesive membrane, extending 12 inches(304mm) onto low slope roof and 24 inches (609mm) onto steep slope roof.
2. Reinforce with 500 mil of seamless composite.
3. Install steep slope roofing material in accordance with Roofing Manufacturer's recommendations and requirements.

3.6 FIELD MEMBRANE INSTALLATION

CONTRACTOR – Review requirements for applying the WEATHERWELD ROOF MEMBRANE.

A. Apply one layer of the composite roofing at the following ratio:
1. Asphalt Emulsion (undiluted): 30 gal. per 100 square feet (12.2 l/m2).
2. Fiberglass Reinforcement: 16 lb. per 100 square feet (0.78 Kg/m2).

B. In accordance with the roofing system manufacturer's flashing details, apply seamless composite to the entire roof surface, terminating at the following locations:
1. Tops of base flashings and curbs
2. Outside edges of perimeter metal flashings.
3. Outside edges of walls.
4. Insides of drain bowls.

C. No water or other material may be added to the emulsion to thin or extend pot life.

D. Fiberglass must be disbursed from the applicator in varying intertwined lengths, up to 24 inches (610mm).

E. Thoroughly mix fiberglass and emulsion prior to application on roof deck.

F. Any loose strands must be brushed by hand, removed or filled-in with emulsion to create a solid surface.

G. Upon completion, no area may be less than 330 mil dry film thickness (DFT).

H. Areas such as base flashings and penetrations, where application exceeds 500 mils wet, must be brushed by hand to prevent surface crazing.
   1. Where required due to phasing or weather conditions, composite roofing may be applied in two passes of half the recommended wet mil thickness.

3.7 REFLECTIVE COATING INSTALLATION

CONTRACTOR – Review requirements for applying ROOF COATINGS

A. Prior to reflective coating application, wash the roof surface with water. Do not commence application until the system has thoroughly dried, as registered by a reading of zero with a calibrated moisture meter.

B. Apply specified roof coating to the entire roof surface at a minimum of 1 1/2 gal. per 100 square feet (0.6 L/m2) in each of two passes to total 3 gallons per 100 square feet. (1.2 L/m2). Back rolling is recommended to ensure even coverage throughout.

3.8 ROOFTOP DUCT ENCAPSULATION

CONTRACTOR – Review requirements for encapsulating ROOF DUCTS.

A. Rooftop sheet metal ducts may be encapsulated with the rooftop composite membrane system specified in this section, installed at 250 mil DFT.

B. Install on top and sides of sheet metal ductwork. Do not apply membrane to the underside of ductwork, on or above mechanical units or on flexible bellows.

3.9 WALKWAY APPLICATION

CONTRACTOR – Review requirements for installing WALKPADS & TRAFFIC SURFACES

A. Walkway Pads:
   1. Install walkway pads using units of size indicated on contract drawings.
   2. Where not expressly specified, install manufacturer's recommended size for the location and anticipated traffic volume.
   3. Install walkway pads with a cold adhesive compatible with the membrane specified.

B. Embedded Granule Traffic Surfacing:
   1. Immediately following the application of the field, mineral granules may be broadcast into the wet acrylic membrane in areas where traffic is likely to occur. Backroll granules with a suitable roller immediately.
   2. Apply granules at a rate of 20 Lbs. (9 kg) per 100 square feet.

3.10 FINAL ROOF INSPECTION

CONTRACTOR – Review requirements during a final roof inspection.

A. At completion of roofing installation and associated Work, schedule a conference to include the Architect, Contractor, roof membrane installer, installers of associated work, roofing system Manufacturers' representative and others directly concerned with performance of roofing system.

B. Perform a site walk of roof surface, inspecting perimeter edges and flashings. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.

C. Should roof core testing verify the presence of damp or wet materials, it is the responsibility of the installer to replace the damaged areas at their expense.

D. The repair or replacement of defective work found during inspection is required to produce an installation that is free of damage and deterioration at time of Substantial Completion and is required to execute the Manufacturer's warranty.

E. Notify Architect upon completion of corrections.

F. Upon a successful final inspection, the contractor will provide an executed copy of the Manufacturer's warranty and written acceptance of the installation.

3.11 PROTECTION

CONTRACTOR – Review requirements in protecting the roof after installation.

A. Prior to allowing any traffic on a newly installed roof membrane, authorization in writing must be obtained from the roof system Manufacturer.

B. Provide traffic ways, and erect barriers, fences, guards, rails, enclosures, chutes, and other measures to protect personnel, roofs and structures, vehicles and utilities.

C. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roof for deterioration and damage. Where any defects or damage are identified describe their nature and extent in a written report, with copies to architect and owner.

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

E. Plywood required for material movement and traffic over existing roofs must be a nominal 5/8 inch (16 mm) thick or greater.

3.12 CLEANING

Expectations of the CONTRACTOR in cleaning the roof and jobsite.

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 coating markings from finished surfaces.

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

D. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION