Miami-Dade County Building Department skyline header image

e-Permitting

MUNICIPAL INSPECTION REQUIREMENTS AND RECORD 09/17/2025
MUNICIPAL NO.2025-072594 FOLIO: 3220220400020
JOB SITE ADDRESS 14001 NW 82 AVE
PROPOSED USE HOSPITALS
LEGAL MIAMI LAKES BUSINESS PARK 22-2 PB 149-15 T-19385
APPLICATION TYPE ALTER EXTERIOR 40000 SQFT 1 UNITS 1 FLOORS
OWNER NAME TGC LL8 LLC
CONTRACTOR NATIONS ROOF RESIDENTIAL LLC
QUALIFIER
PERMIT TYPE MUNICIPAL BLDG
CATEGORIES 0001 MUNICIPAL GENERAL BUILDING

DATE: 9/17/2025 PROCESS NUMBER: M2025021257 NEW *AMOUNT PAID 245.50
DERM 1 UP FRONT FEE- 80.00 DERM 1 MIN COMM REV(90.00
FIRE 60000 FIRE UPFRT FE 34.32 FIRE 1 NOT APPLICABL 16.26
FIRE 1 SRI PLAN REVI 252.81 RSUR 1 RER 7.5% SUR 0.75
UBS1 1 BLDG 7.5% UPF 1.88 UPMU 25 UPFRONT FEE F 25.00
URS1 1 RER 7.5% UPFR 6.00

9/17/2025 12:10 BNZWEB1 182509173816 WEBIPAS 245.50

MUNICIPAL INSPECTION REQUIREMENTS AND RECORD 09/17/2025
MUNICIPAL NO.2025-072594 PROCESS NO. M2025021257 FOLIO: 3220220400020
JOB SITE ADDRESS 14001 NW 82 AVE
PROPOSED USE HOSPITALS

REQUIRED INSPECTIONS INIT DATE

MUNICIPAL INSPECTION REQUIREMENTS AND RECORD 09/17/2025
MUNICIPAL NO.2025-072594 PROCESS NO. M2025021257 FOLIO: 3220220400020
JOB SITE ADDRESS 14001 NW 82 AVE
PROPOSED USE HOSPITALS

TO SCHEDULE A FIRE INSPECTION, PLEASE VISIT THE WEB AT WWW.MIAMIDADE.GOV/BUILDING OR WWW.MIAMIDADE.GOV/FIRE. YOU WILL NEED TO PROVIDE YOUR TEN DIGIT MUNICIPAL INSPECTION NUMBER AND INSPECTION TYPE. THE INSPECTION TYPE CAN BE FOUND ON YOUR INSPECTION REQUIREMENTS AND RECORDS CARD.

IF YOU HAVE ANY QUESTIONS OR CONCERNS REGARDING AN INSPECTION, SCHEDULING A PRELIMINARY INSPECTION, OR LOAD BANK TEST

INSPECTION, PLEASE CALL FIRE PREVENTION AT 786-331-4800.

IF YOU HAVE ANY QUESTIONS OR CONCERNS REGARDING A PLAN REVIEW, PLEASE CALL FIRE ENGINEERING AT (786) 315-2771.

**BE ADVISED THIS IS NOT A PERMIT. PERMIT IS TO BE ISSUED BY YOUR CORRESPONDING MUNICIPAL BUILDING DEPARTMENT.

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;

eurofins | Built Environment Testing

Report for:

Simon Hahessy
AirMD
7700 Congress Ave Ste 1119
Boca Raton, FL 33487

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: 2402703- VM; Select Medical Miami Lakes
EML ID: 3778729

Approved by:

Approved Signatory
Balu Krishnan

Dates of Analysis:
Asbestos PLM: 09-13-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200738-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC
6340 NW 5th Way, Ft. Lauderdale, FL 33309
(866) 871-1984 www.eurofinsus.com/Built

Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	19
Total Samples Analyzed:	19
Total Samples with Layer Asbestos Content > 1%:	0

Location: DW1, Drywall/ Compound Lab ID-Version‡: 18628098-1

Sample Layers	Asbestos Content
White Joint Compound with Paint 1	ND
White Joint Compound with Paint 2	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: DW2, Drywall/ Compound Lab ID-Version‡: 18628099-1

Sample Layers	Asbestos Content
White Joint Compound with Paint	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: DW3, Drywall/ Compound Lab ID-Version‡: 18628100-1

Sample Layers	Asbestos Content
White Joint Compound with Paint 1	ND
White Joint Compound with Paint 2	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: FT1, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628101-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
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Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: FT2, Vinyl Floor/ Mastic Lab ID-Version‡: 18628102-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: FT3, Vinyl Floor/ Mastic Lab ID-Version‡: 18628103-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ACT1, Acoustic Ceiling Tile Lab ID-Version‡: 18628104-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 10% Mineral Wool
Sample Composite Homogeneity:	Good

Location: ACT2, Acoustic Ceiling Tile Lab ID-Version‡: 18628105-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 10% Mineral Wool
Sample Composite Homogeneity:	Good

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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: ACT3, Acoustic Ceiling Tile

Lab ID-Version‡: 18628106-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 10% Mineral Wool
Sample Composite Homogeneity:	Good

Location: CA1, Caulk

Lab ID-Version‡: 18628107-1

Sample Layers	Asbestos Content
Beige Caulk	ND
Sample Composite Homogeneity:	Good

Location: CA2, Caulk

Lab ID-Version‡: 18628108-1

Sample Layers	Asbestos Content
Beige Caulk	ND
Sample Composite Homogeneity:	Good

Location: CA3, Caulk

Lab ID-Version‡: 18628109-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: CA4, Caulk Lab ID-Version‡: 18628110-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: CT1, Concrete Lab ID-Version‡: 18628111-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: CT2, Concrete Lab ID-Version‡: 18628112-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: CT3, Concrete Lab ID-Version‡: 18628113-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: V1, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628114-1

Sample Layers	Asbestos Content
White Sheet Flooring	ND
Yellow Mastic	ND
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: V2, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628115-1

Sample Layers	Asbestos Content
White Sheet Flooring	ND
Yellow Mastic	ND
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: V3, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628116-1

Sample Layers	Asbestos Content
White Sheet Flooring	ND
Yellow Mastic	ND
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

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CHAIN OF CUSTODY

eurofins | Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003778729

Non-Cu

Spore Trap | S

ther Requests

CONTACT INFORMATION

Company:	AirMD	Address: 7700 Congress Ave Suite 1119 Boca Raton, FL 33487	
Contact:		Special Instructions:	
Phone:	561-245-4500		

PROJECT INFORMATION

Project ID:	2402703-VM		
Project Description:	Select Medical Miami Lakes		
Project Zip Code:	33016	Sampling Date/Time:	9/11/24 9:00AM
PO Number:		Sampled By:	Vincent Mendez

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + *Asp.* spp.)	Culturable Air Fungi (Genus ID + *Asp.* spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	*Legionella* culture	Total Coliform, *E.coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
DW1	Drywall/compound	B	STD															X				
DW2	↓																	X				
DW3	↓																	X				
FT1	Vinyl Floor/Mastic																	X				
FT2	↓																	X				
FT3	↓																	X				
ACT1	Acoustic Ceiling tile																	X				
ACT2	↓																	X				
ACT3	↓																	X				
CA1	Caulk																	X				
CA2	↓																	X				
CA3	↓																	X				
CA4	↓																	X				

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
	9/11/24 12:00PM

RECEIVED BY	DATE & TIME
JS	9/12/24
	9:50

CHAIN OF CUSTODY

eurofins | Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003778729

CONTACT INFORMATION

Company:	AirMD	Address: 7700 Congress Ave Suite 1119 Boca Raton, FL 33487	
Contact:		Special Instructions:	
Phone:	561-245-4500		

PROJECT INFORMATION

Project ID:	2402703-VM		
Project Description:	Select Medical Miami Lakes		
Project Zip Code:	33016	Sampling Date/Time:	9/11/24 9:00 AM
PO Number:		Sampled By:	Vincent Mendez

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
CT1	Concrete	B	STD		
CT2	↓	↓	↓		
CT3	↓	↓	↓		
V1	Vinyl floor/mastic	↓	↓		
V2	↓	↓	↓		
V3	↓	↓	↓		

Non-Culturabl

Requests

Spore Trap Analysis	Other biological particles - supplement	Spore Trap	Tape, Swab, B	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + *Asp.* spp.)	Culturable Air Fungi (Genus ID + *Asp.* spp.)	Gram Stain and Counts (Culturable Air and Surface Bacte	*Legionella* culture	Total Coliform, *E.coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
														X	X			
														X	X			
														X	X			
														X	X			

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
	9/11/24 12:04pm

RECEIVED BY	DATE & TIME
JJ	9/12/24
	9:50

CARLISLE
SYNTEC SYSTEMS

Select Medical, Miami Lakes

Select Medical, Miami Lakes

Table of Contents

November 11, 2024

NATIONS ROOF SOUTHERN FLORIDA LLC - 270208
3772 N.W. 126 AVENUE
CORAL SPRINGS, FL 33065
United States

Project: Authorized Applicator Letter

To Whom It May Concern:

This letter is to confirm that NATIONS ROOF SOUTHERN FLORIDA LLC - 270208 in CORAL SPRINGS, FL is a Carlisle Authorized Applicator.

If you should have any further questions, please feel free to contact me.

Sincerely,

Shannon Wyatt
Southeast Regional Sales Manager

CARLISLE SYNTEC SYSTEMS

FleeceBACK® TPO Membranes

Overview

FleeceBACK TPO membranes are manufactured using a hot-melt extrusion process for complete scrim encapsulation. Once the TPO is reinforced and enhanced with fleece, the total sheet thicknesses available are 100-, 115-, and 135-mils, creating a very tough, durable and versatile sheet that is ideal for re-roofing or new construction projects. FleeceBACK TPO sheets are chlorine free and plasticizer free with excellent chemical resistance to acids, bases, restaurant oils, and greases.

All FleeceBACK TPO membranes utilize Octaguard XT™ weathering package technology to withstand extreme durability testing intended to simulate exposure to severe climates. FleeceBACK TPO's advanced polymerization technology combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene.

FleeceBACK TPO membranes are intended to be used with adhered or mechanically fastened roofing systems. FleeceBACK TPO is ideally suited for roof garden and solar panel applications and projects demanding superior wind uplift resistance due to its added toughness and durability. FleeceBACK TPO is also a great solution for buildings requiring low noise and odors during roofing application.

Features and Benefits

- No VOCs, low odor, low noise, and speed of application minimizes occupied building disruptions
- Superior wind uplift performance and ratings (up to an FM 1-990) due to a mechanical bond between fleece and adhesive
- 75% fewer seams than Modified Bitumen
- Wide window of weldability
- Fleece reinforcement adds toughness, durability, and enhanced puncture resistance
  - 115-mil membrane delivers 33% greater puncture resistance and 33% greater breaking strength than 60-mil TPO
  - Greater puncture resistance than Modified Bitumen
- Excellent hail damage resistance:
  - Passes FM's severe hail test
  - Passes UL-2218 Class 4 rating
  - Passes National Bureau of Standards – 23 Ice Ball test up to 3"-diameter hail with the membrane cooled to 32°F
- Standard Colors:

White Gray Tan

- Special Colors:

Slate Gray Med Bronze Terra Cotta Patina Green Rock Brown

*Sure-Weld® HS Special Color TPO membranes are available in limited sizes. Refer to Carlisle's Sure-Weld HS TPO Special Color Program Sell Sheet for details.

Sustainable Attributes

Carlisle SynTec Systems' focus has always been innovation - Innovation to solve problems, improve performance, reduce labor, and above all, improve sustainability. Carlisle is committed to driving sustainable and efficient processes in the design and manufacturing of our products.

- Up to 10% pre-consumer recycled content
- Free of Living Building Challenge red list chemicals
- NSF P151 Certification for rainwater catchment*
- 3rd-party verified Environmental Product Declaration available

*Plant 91/White only

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO Membranes

Optional APEEL™ Protective Film

Shield Carlisle's FleeceBACK TPO membrane from dirt and scuffs during installation with APEEL Protective Film. Factory-applied and easy to remove, APEEL eliminates the need for rooftop cleaning upon project completion.

- Ideal for re-roofing, re-cover, and new construction projects
- Simple and easy to remove
- Saves time and money when compared to pressure washing
- Protecting from dirt maintains maximum membrane reflectivity and long-term performance

Installation

Simply order membrane with APEEL, install, and remove the film to reveal a clean, new roof.

- APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance .
- When the installation of the entire roofing system is complete, remove and discard the APEEL Protective Film.

Installation

Adhered Roofing System

Insulation is mechanically fastened or adhered. Spray-apply, splatter, or extrude Flexible FAST™ Adhesive to the substrate and allow foam to "string/body" approx 1–2 minutes prior to setting FleeceBACK TPO into the Flexible FAST Adhesive. Roll FleeceBACK TPO membrane with a 30"-wide, 150-pound weighted roller to ensure full embedment. Splices are hot-air welded. End laps are butted and sealed with reinforced membrane or a head sheet may be utilized.

Review Carlisle specifications and details for complete installation information, including mechanically fastened options.

Precautions

- Use proper stacking procedures to ensure sufficient stability.
- Exercise caution when walking on wet membrane.
- Sunglasses that filter out ultraviolet light are strongly recommended, as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
- White surfaces reflect heat and may become slippery due to frost and ice accumulation.
- Care must be exercised when working close to a roof edge when the surrounding area is snow covered.
- FleeceBACK TPO membrane rolls must be tarped and elevated to keep dry prior to installation. If the fleece gets wet, use a wet vac system to help remove moisture from the fleece. DO NOT INSTALL MEMBRANE IF FLEECE IS WET.
- FleeceBACK TPO membrane exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

Supplemental Approvals, Statements and Characteristics:

1. FleeceBACK TPO meets or exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.
2. Radiative Properties for Cool Roof Rating Council (CRRC) and LEED.
3. FleeceBACK TPO membranes conform to requirements of the US E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
4. FleeceBACK TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 100-mil was watertight after an impact energy of 20 joules, 115-mil was watertight after 25 joules, and 135-mil was watertight after 32.5 joules.

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO
Membranes

LEED® Information

Pre-consumer Recycled Content	10%		
Post-consumer Recycled Content	0%		
Manufacturing Location	Senatobia, MS; Tooele, UT		
Solar Reflectance Index	White: 99	Gray: 52	Tan: 86

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

Physical Property	Test Method	White	Tan	Gray
CRRC – Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC – Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC – Initial thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED – Thermal emittance	C1371	0.90	0.86	0.85
Solar Reflectance Index (SRI) – Initial	ASTM E1980	99	86	52
Solar Reflectance Index (SRI) – Aged 3 Years	ASTM E1980	85	77	49

Carlisle Extreme Testing – Heat Aging

		ASTM Requirement	FleeceBACK TPO Requirement
ASTM Test	240°F	32 weeks*	>128 weeks

*Comparable to 3,120 weeks (6 years) at 185°F for 8 hrs/day.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Carlisle Extreme Testing – Environmental Cycling

–10 days heat aging at 240°F (116°C) followed by 5 days water immersion at 158°F (70°C)
Followed by 5,040 kJ/m² (2000 hrs. at 0.70 W/m² irradiance) xenon-arc exposure

Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion followed by xenon-arc exposure.

Carlisle Testing – Q-Trac

	ASTM D6878 Requirement	Sure-Weld Requirement
ASTM TEST N/A	N/A	Equivalent of 40 years of exposure

Radiative Properties (Initial) for Special Colors

	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.

EXTREME Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose." Carlisle's goal is to produce TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM D6878.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Carlisle requires its Sure-Weld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

CLASSIFIED UL | ICC ES | FM APPROVED | CRRC COOL ROOF RATING COUNCIL | MIAMI-DADE COUNTY APPROVED | MADE IN USA AMERICA | NSF

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO
Membranes

Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (Min.)	FleeceBACK TPO Typicals
Tolerance on Nominal Thickness, %	ASTM D751	±10	±10
Thickness over Fleece, min			
100-mil (2.54 mm)		—	.045 (1.14)
115-mil (2.92 mm)		—	.060 (1.52)
135-mil (3.43 mm)		—	.080 (2.03)
Weight, lbm/ft²			
100-mil		—	0.27
115-mil		—	0.33
135-mil		—	0.46
Breaking Strength, min, lbf (kN)	ASTM D751	220 (1)	
100-mil	Grab Method		375 (1.7)
115-mil			450 (2)
135-mil			500 (2.2)
Elongation at break of internal fabric, %	ASTM D751	15	25
Tearing Strength, min, lbf (N)	ASTM D751		
100- & 115-mil, 135-mil	B Tongue Tear	55 (245)	100 (445)
Puncture Resistance, Joules	ASTM D5635		
100-mil		—	20
115-mil		—	25
135-mil		—	32.5
Puncture Resistance, lbf	FTM 101C		
100-mil	Method 2031	350	450
115-mil		400	525
135-mil		425	600
Brittleness point, max, °F (°C)	ASTM D2137	-40 (-40)	-50 (-46)
Linear Dimensional Change, %	ASTM D1204	± 1 max	-0.2 typical
Field Seam Strength, lbf/in. (kN/m) ASTM D1876 tested in peel	ASTM D1876		
100-mil		25 (4.4)	50 (8.8)
115-mil		25 (4.4)	60 (10.5)
135-mil		40 (7.0)	70 (12.3)
Water Vapor Permeance, Perms	ASTM E96 Proc B	—	0.10 max, 0.05 typical
Resistance to Microbial Surface Growth, Rating (1 is very poor, 10 is no growth)	ASTM D3274	—	9-10 typical
Properties after heat aging–ASTM D573, 670 hrs. at 240 °F	ASTM D573		
Breaking strength, % retained		—	90 min
Elongation reinf. % retained		—	90 min
Tearing Strength, % retained		—	60 min
Weight Change, %		—	± 1.0 max
Ozone Resistance 100 pphm, 168 hours	ASTM D1149	No cracks	No cracks
Resistance to Water Absorption After 7 days immersion @ 158°F (70°C) Change in mass, max, % (one side)	ASTM D471	± 3.0	0.90
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m² irradiance, 80°C black panel temp.	ASTM G155	No cracks; No loss of breaking or tearing strength	No cracks; No loss of breaking or tearing strength
100-mil			17,640 kj/m²
115-mil			20,160 kj/m²
135-mil			27,720 kj/m²

CARLISLE
SYNTEC SYSTEMS

Flexible FAST™ Dual Tank Adhesive

HFC-FREE

Productivity Boosting Features and Benefits:

- Reduces labor by eliminating equipment maintenance and breakdowns
- Application time reduced up to 15% when compared to low-pressure dispensing machines
- Increased productivity when Dual Tanks are used simultaneously (each additional Dual Tank can increase productivity up to 100%)

Overview

Carlisle's Flexible FAST Dual Tank Adhesive is a two-component, construction-grade, low-rise polyurethane adhesive designed for bonding Carlisle's FleeceBACK® membranes and/or insulation to various substrates. Now featuring an HFO blowing agent, Flexible FAST Dual Tanks have improved characteristics compared to products that use an HFC blowing agent.

Flexible FAST Dual Tank Adhesive is compatible with: HP Recovery Board, InsulBase® Polyiso, SecurShield® Polyiso, SecurShield HD, SecurShield HD Plus, expanded polystyrene (EPS), extruded polystyrene (XPS), spray polyurethane foam (new or scarified SPF), DensDeck®, SECUROCK®, and StormBase®.

Compatible deck types include concrete, cellular lightweight concrete (LWC), gypsum, cementitious wood fiber, wood, and painted or galvanized steel. Flexible FAST Dual Tank Adhesive is also compatible with the following roofing materials: smooth (previously exposed) BUR, mineral cap sheets, smooth (previously exposed) or granulated mod bit, aged EPDM, aged Hypalon®, and Carlisle's VapAir Seal™ 725TR Air and Vapor Barrier.

Flexible FAST EU Dual Tanks meet the requirements for pressurized tanks for the European Union. The features, benefits, installation, storage, and precaution criteria listed on this PDS also apply to Flexible FAST EU Dual Tanks.

Features and Benefits

- VOC free, self-contained system
- HFO blowing agent
  - Green alternative, offering low GWPs and zero ODPs
  - Easier and more efficient splatter application; dispenses in a more uniform pattern
  - Improved coverage rates by up to 16% versus other canister based insulation and membrane adhesives
  - Improved rise and cell structure
  - Improved and more obvious string time
- Non-penetrating, low noise, low odor
- Superior wind uplift performance
- Added puncture resistance of 33-50% compared to competitive two-component low-rise adhesives
- Consistent elongation properties up to 150%
- FM, UL, Miami Dade and Florida building approvals

Flexible FAST Dual Tank Adhesive

Coverage Rate

FleeceBACK membrane or insulation attachment to lightweight concrete, concrete, plywood and OSB, plank wood, steel, smooth BUR, mod-bit, mineral cap sheets, SPF, or multiple layers of insulation:

(Application rates may vary depending on ambient temperatures, surface, and substrate absorption rate.)

Approximate Coverage Rate (Sq. Ft.)	Splatter*	4" o.c.	6" o.c.	12" o.c.
	2,600-2,800	1,100-1,300	1,700-1,900	3,500-3,700

*Dual Tank splatter approved for membrane attachment to smooth flat surfaces only. Dual Tank splatter is not approved for insulation attachment.

May vary depending on climate, temperature, humidity, and equipment. Please consult Carlisle for project-specific bead widths and spacing.

Application

Substrate Preparation

1. The surface to which adhesive is to be applied shall be dry, free of fins, protrusions, sharp edges, loose or foreign material, oil, and grease. Depressions greater than ¼" shall be filled with adhesive or other approved patching material. All sharp projections shall be removed.
2. Seal gap between the wall/penetrations and concrete deck with VapAir Seal 725TR, Flashing Foam, or other suitable material to avoid condensation or air infiltration issues.
3. Apply Flexible FAST Dual Tank Adhesive when substrate and ambient temperature are 25°F or above.
4. Bead spacing is minimum. Depending on warranty length and wind coverage, ribbon spacing may be reduced. Refer to published specification and warranty.
5. Previously unexposed asphalt must be primed with CAV-GRIP® III.

Setup

Note: When spraying the dispensing unit for the first time, or when starting a new kit, Carlisle recommends that users trigger the gun only a quarter to halfway open until the desired output and spray pattern is achieved. This allows complete control of the flow rate and spray pattern that best fits the application.

1. Spray gloves, long sleeves, and protective glasses should be worn during setup and dispensing.
2. In colder temperatures, it is recommended to utilize heated blankets to ensure the tanks are kept warm while dispensing the product.
3. Shake kits for 15–20 seconds before use.
4. Connect hoses to tanks prior to opening the A and B tank valves.
5. Before attaching the nozzle to the dispensing unit, apply a generous amount of petroleum jelly to the face. This will help to prevent contamination by cured foam or chemicals and will help to keep the sealing ports clean. Detailed instructions for attaching the nozzle are included in packaging for A-side tanks.
6. **When applying Flexible FAST Dual Tank Adhesive as a bead, the 14" extension nozzle is required and must be attached to the end of the gun tip before dispensing adhesive. Attach the nozzle extension by rotating the extension tip clockwise onto the end of the gun tip.**
7. **When applying Flexible FAST Dual Tank Adhesive as a splatter application, the 14" extension nozzle should not be used. Splatter application can be achieved by triggering the gun from a distance of 2'–3' off the deck. Adhesive should be dispersed using a horizontal back and forth motion, achieving 50% coverage of the substrate at 3.75 lbs/sq.**
8. Once the trigger is released, it MUST BE REACTIVATED WITHIN 15 SECONDS or a new nozzle must be installed. Failure to do this could result in chemical leakage, spills, or splashes which can ruin the dispensing unit and/or hoses.
9. After releasing the trigger, activate the trigger safety to prevent accidental discharge.
10. The dispensing unit face can be kept clean by using petroleum jelly on the face or using a soft cloth to remove residue.
11. **Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.**

Storage

1. Close tank valves.
2. Do not store at temperatures above 100°F or below 40°F for long periods of time.
3. The used nozzle should be removed and the dispensing unit should be cleaned with a splice wipe to help keep outlet ports clean and free from any dust, dirt, or chemicals that can affect the proper sealing of the nozzle. ALWAYS engage the trigger safety and close all supply valves during storage. Do not purge adhesive from hose.
4. Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.

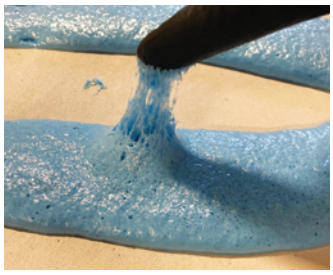
CARLISLE SYNTEC SYSTEMS

Flexible FAST Dual Tank Adhesive

Application of petroleum jelly to spray gun

Shaking of A-side and B-side tanks

Apply using extension nozzle



Performing the string-time test

Re-use of Dispensing Unit After Storage

1. Check the face of the dispensing unit to ensure outlet ports are clear and the face of the unit is free from dirt, chemicals, or other debris. If necessary, use a soft cloth or rag to remove any cured foam or chemicals from the face of the dispensing unit. The use of petroleum jelly is recommended to cover the face of the dispensing unit to prevent further contamination or if chemical is accidentally leaked into this area.
2. Attach a new or cleaned nozzle to the dispensing unit.
3. Shake kits for 15–20 seconds before use.

FleeceBACK Membrane Attachment
Slide-in Method:

1. Unroll FleeceBACK sheet and position. Fold the sheet back in half lengthwise (end-to-end).
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once “string time” occurs, gradually feed FleeceBACK sheet into Flexible FAST Adhesive, checking for “string/body” every few feet. Stop feeding FleeceBACK sheet into adhesive when applicator reaches adhesive that has NOT developed “string/body”. Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Roll-in (Mod Bit) Method:

1. Keeping the FleeceBACK sheet on the core, position roll of FleeceBACK membrane at the designated starting point.
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once “string time” occurs, gradually roll FleeceBACK membrane into Flexible FAST Adhesive, checking for “string/body” every few feet. Stop rolling FleeceBACK into adhesive when applicator reaches adhesive that has NOT developed “string/body”. Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Insulation Attachment:

1. Dispense Flexible FAST Dual Tank Adhesive at the appropriate coverage rate. For steel decks, beads of adhesive must run parallel with, and be on top of, all of the flutes.
2. Place insulation boards (maximum 4' x 4' insulation boards when adhesive is dispensed at 12" o.c. or when boards exceed 4" thickness, or 4' x 8' insulation boards when adhesive is applied at 4", or 6" beads) into adhesive after allowing it to rise and develop “string/body”. String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.
3. Bead spacing parameters for 5, 10, 15, or 20-year 55-mph warranties: (Contact Carlisle Project Review for bead spacing on higher mph warranties and 30-year warranty projects).

Building Height	Bead Spacing (Perimeter)	Bead Spacing (Field)
0' – 25'	6" o.c. - 4'	12" o.c.
26' – 50'	6" o.c. - 8'	12" o.c.
51' – 75'	6" o.c. - 12'	12" o.c.
76' – 100'	6" o.c. - 16'	12" o.c.
101' or greater	6" o.c. - 24'	12" o.c.

4. Designate one person to walk boards into place and then roll with a 150-lb. segmented roller 5 to 7 minutes from the initial adhesive application. Boards may be temporarily weighted or relief cut where necessary to keep boards in constant contact with the adhesive until adhesive is cured.
5. At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of boards to ensure a tight bond has been created and maximum contact has been achieved.

Review Carlisle specifications and details for complete application information.

Flexible FAST Dual Tank Adhesive

Disposal Procedures:

1. Eye protection and impervious gloves MUST be worn during disposal procedures.
2. **DO NOT dispose of, puncture, or incinerate cylinder tanks while under pressure.**
3. When the job is completed or tanks are empty, pressure must be released from the tanks.
4. With the tank valves open, trigger Dual Tank gun open 100%, discharging remaining adhesive, as well as pressure and propellant, into a lined waste container.
5. After cylinders are empty of all pressure and propellant, tanks must be vented. **CAUTION: tanks could still be under pressure.**
6. Close valves and release remaining pressure from hoses. Remove hoses, flip tank upside down, and with tank valve positioned AWAY from face and others, slowly reopen tank valve and allow excess pressure and or chemical to drain into a lined waste container and allow pressure to completely vent.

   CAUTION: All pressure MUST be vented 100%. Empty tanks could contain potential vapor toxicity hazard. Provide adequate ventilation or respiratory protection (consult SDS).
7. Once cylinder is empty and vented, carefully puncture the friable disc on the top of the cylinder. Cylinders should sit for 30 minutes prior to disposal.
8. DISPOSE OF EMPTY CYLINDERS AND EXCESS CHEMICAL ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
9. For recycling information, check with local municipality, or contact Clean Earth.

Clean Earth Locations

Address	City/State/Zip	Phone Number
1689 Shar-Cal Road	Calvert City, KY 42029	270-605-2105
1750 Morgantown Industrial Park	Morgantown, WV 26501	304-292-0659
402 Webster Chapel Road	Glencoe, AL 35905	800-739-9156
30677 Huntwood Avenue	Hayward, CA 94544	510-429-1129
1733 Morgan Road	Modesto, CA 95358	510-429-1129
4132 Pompano Road	Charlotte, NC 28216	704-395-9559

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Tomball, TX

For more information on substrate compatibility, please refer to the chart found on the Flexible FAST Adhesive Product Data Sheet.

Precautions

- **Flexible FAST Dual Tank splatter application is NOT approved for walls.**
- Review the applicable Safety Data Safety Sheet (SDS) for complete safety information prior to use.
- The foam produced is an organic material. It must be considered to be combustible and may constitute a fire hazard. Foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with prefilters and solvent-resistant cartridges if concentrations of MDI exceed the TLV or are unknown. Proper safety training is essential for all persons involved in the application process. If inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long sleeves and pants. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil.

  NOTE: Nitrile gloves are required when handling Part A directly.
- Extended storage temperatures in excess of 90°F may affect product shelf life.
- Do not store in temperatures below 40°F.
- Do not allow material to freeze.
- If the components are stored at temperatures lower than 70°F, restore to 70°F before using adhesive.
- High-slope applications require adhesive to be applied to the back of the insulation board on a flat surface.
- KEEP OUT OF THE REACH OF CHILDREN.

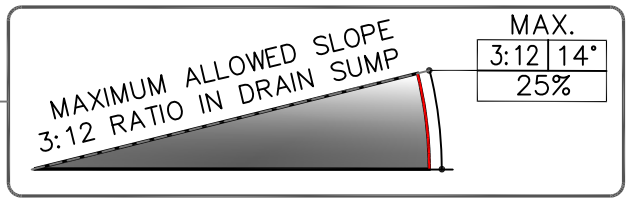
Typical Properties and Characteristics

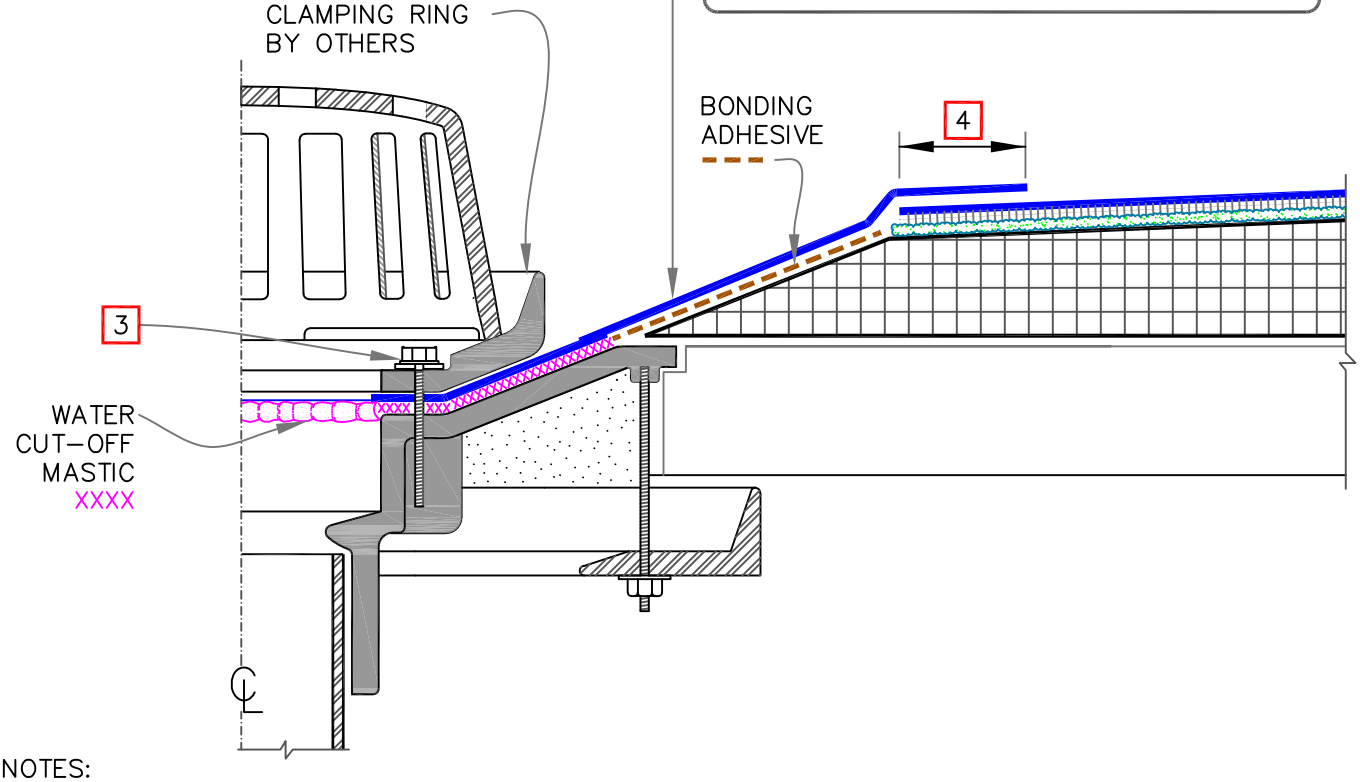
	Dual Tank-A	Dual Tank-B
Base	Polymeric Isocyanate	Polyols, Surfactants, Catalyst
Average Net Weight	9.8 lbs/gal	9.3 lbs/gal
Packaging	62 lbs (28.1kg)	54 lbs (24.5 kg)
Shelf Life	1 year	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

CAUTION

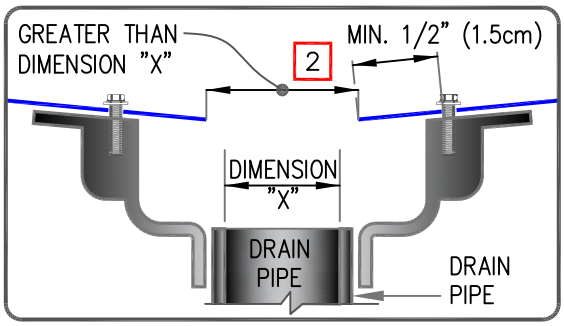
EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE FIELD APPLIED SecurTAPE FOR PROJECTS WITH 20, 25 & 30-YEAR WARRANTIES.





NOTES:

1. REMOVE EXISTING LEAD, FLASHING MATERIAL & ENSURE THE DRAIN RING IS COMPLETELY CLEAN DOWN TO BARE METAL.
2. THE HOLE IN THE MEMBRANE SHALL EXCEED THE DIAMETER OF THE DRAIN PIPE, BUT SHALL BE NO LESS THAN 1/2" (1.5cm) FROM THE ATTACHMENT POINTS OF THE DRAIN CLAMPING RING.
3. ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON WATER CUT-OFF MASTIC.
4. SPLICES SHALL BE COMPLETED USING MIN. 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1-1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.
5. FIELD SPLICES MUST BE LOCATED AT LEAST 6 INCHES (15cm) OUTSIDE THE DRAIN SUMP.
6. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT-EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.
7. ROOF DRAIN SIZE AND NUMBER OF DRAINS SHALL BE IN ACCORDANCE WITH THE LOCAL CODES.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S) 1 2 3 4 5 6 7

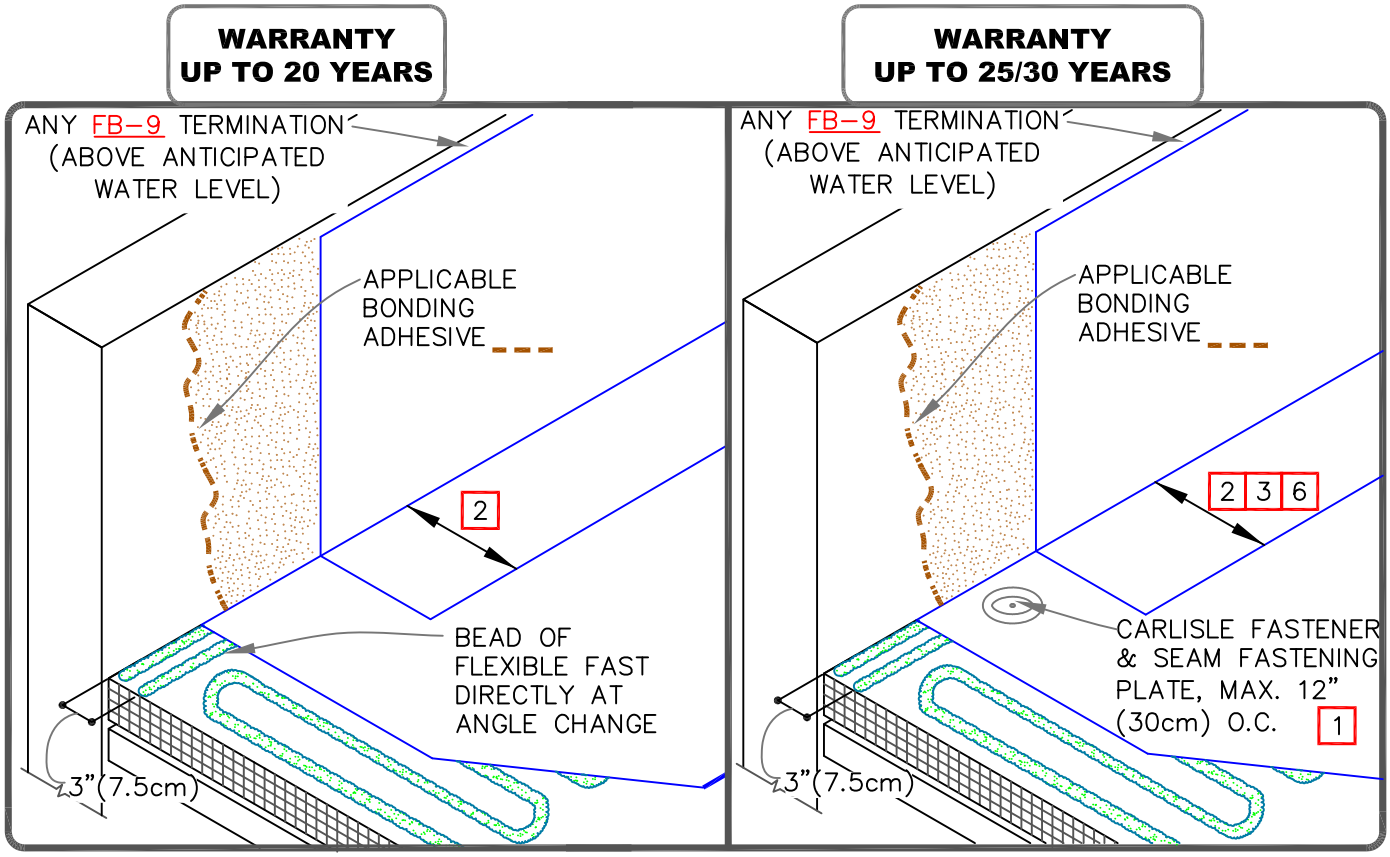
ROOF DRAIN WITH SEPARATE TARGET SPLICE

MAXIMUM WARRANTY: 30 YEARS

DETAIL NO.
FB-6B.1
FLEECEBACK ADHERED

CAUTION

REFER TO DETAIL FB–12C WHEN USING AQUA BASE 120 ADHESIVE OR HYDROBOND.



NOTES:

1. MECHANICALLY FASTENED BASE SECUREMENT IS REQUIRED WHEN ANY ONE OF THE FOLLOWING MAY OCCUR:
   - 1.1. SPECIFIED WARRANTIES GREATER THAN 20–YEARS.
   - 1.2. WARRANTY WIND SPEEDS GREATER THAN 90MPH.
   - 1.3. PROJECTS WITH CONTROL OR EXPANSION JOINTS OR ANTICIPATED BUILDING MOVEMENT.
   - 1.4. WHEN FLEECEBACK MEMBRANE IS INSTALLED DIRECTLY OVER AN EXISTING SINGLE–PLY ROOF.

2. SPLICES SHALL BE COMPLETED USING MINIMUM 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1–1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.

3. EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE SECURTAPE FOR PROJECTS WITH 25 AND 30–YEAR WARRANTIES.

4. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT–EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.

5. WHEN USING 60 OR 80–MIL REINFORCED THERMOPLASTIC MEMBRANE FLASHING, APPLY A 4–1/2" (11cm) DIAMETER THERMOPLASTIC "T–JOINT" COVER AT ALL FIELD SPLICE INTERSECTIONS.

6. 3" AND 6" FIELD APPLIED TAPE MUST BE OUTSIDE PLATES.

7. ALL EPDM SPLICE INTERSECTIONS REFER TO FB–2 DETAILS.

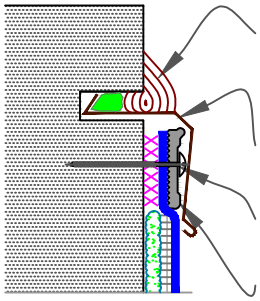
FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S) 1 2 3 4 5 6 7

PARAPET/CURB WITH SEPARATE MEMBRANE – BEAD APPLIED

MAXIMUM WARRANTY: SEE EACH DETAIL

DETAIL NO.
FB–12A.1B
FLEECEBACK ADHERED

9A MECHANICAL TERMINATION WITH COUNTER FLASHING



CARLISLE UNIVERSAL SINGLE–PLY SEALANT OR SEALANT (BY OTHERS)

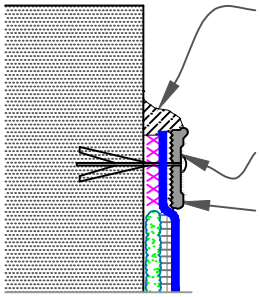
METAL COUNTER–FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

THREADED FASTENERS OR CARLISLE HP TERM BAR NAIL–IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 30 YEARS **SEE INSET A**

9B MECHANICAL TERMINATION



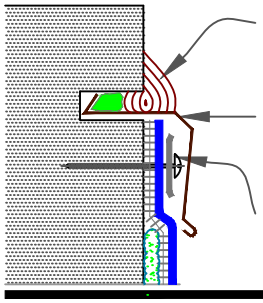
CARLISLE UNIVERSAL SINGLE–PLY SEALANT OR SEALANT (BY OTHERS)

CARLISLE HP TERM BAR NAIL–IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 20 YEARS **SEE INSET A**

9C COUNTER FLASHING TERMINATION



CARLISLE UNIVERSAL SINGLE–PLY SEALANT OR SEALANT (BY OTHERS)

METAL COUNTER–FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

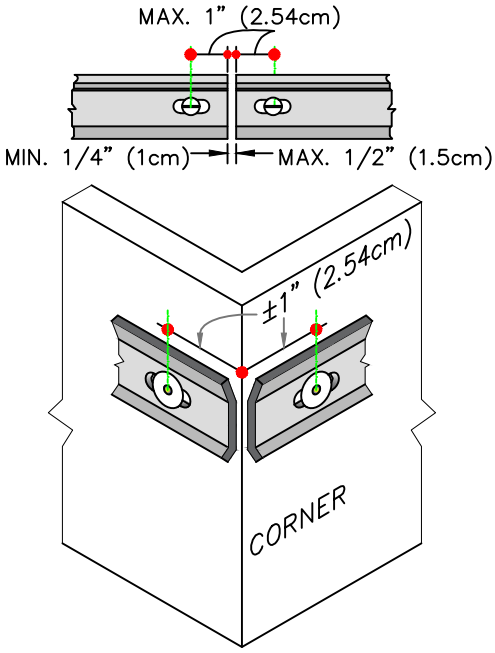
FASTEN MEMBRANE @ 12" (30cm) O.C. MAX. USE GALVANIZED WASHERS, MIN. 1", (2.54cm) DIAMETER

NOTE:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER–FLASHING, USE EPDM WASHERS, APPLY WATER CUT–OFF MASTIC UNDER THE COUNTER–FLASHING OR CAULK THE FASTENER HEADS.

WARRANTY UP TO 10 YEARS

INSET A



NOTES:

1. APPLY ON HARD SMOOTH SURFACE ONLY; NOT FOR USE ON EXPOSED WOOD.
2. DO NOT WRAP TERMINATION BAR AROUND CORNERS.
3. DETAIL 9D ON PAGE 2 OF 3 MUST BE USED AT VERTICAL JOINTS IN PANEL WALLS.

xxx WATER CUT–OFF MASTIC– MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
0 SEE NOTE(S)

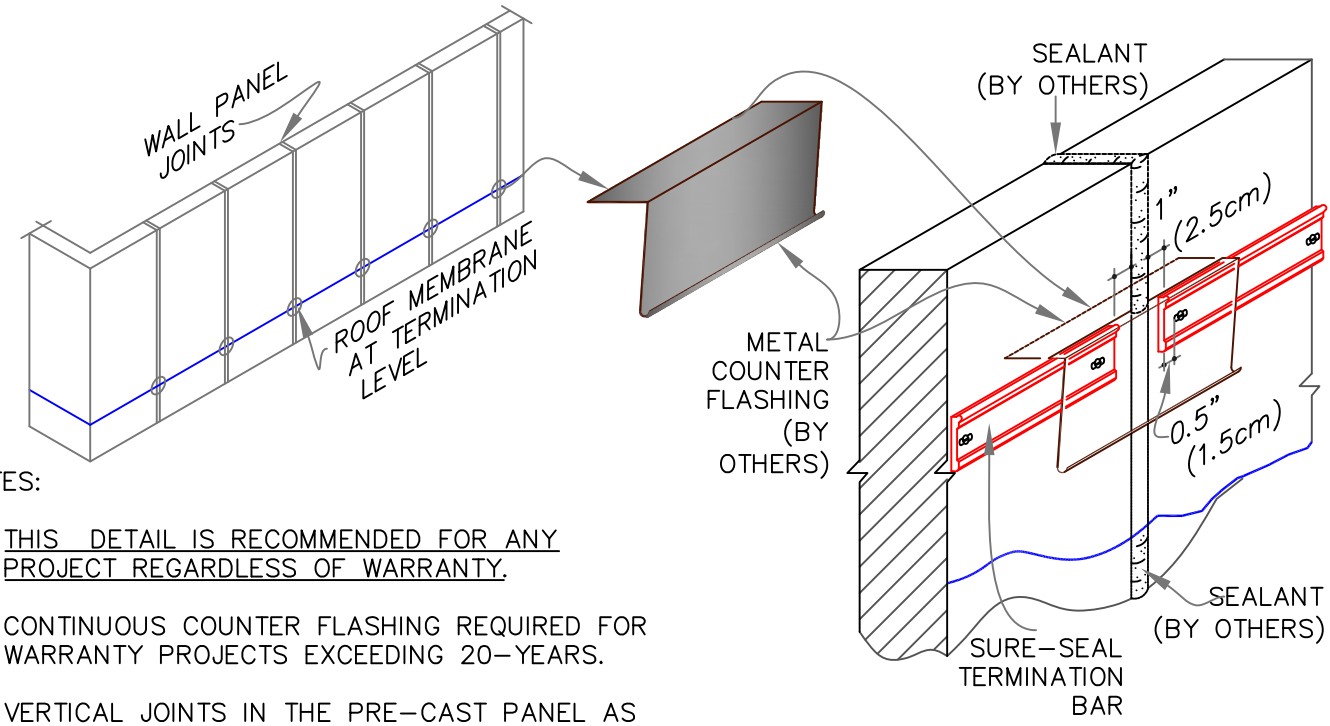
MEMBRANE TERMINATIONS (PAGE 1 OF 3)

WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB–9

FLEECEBACK ADHERED

9D MECHANICAL TERMINATION AT VERTICAL JOINTS



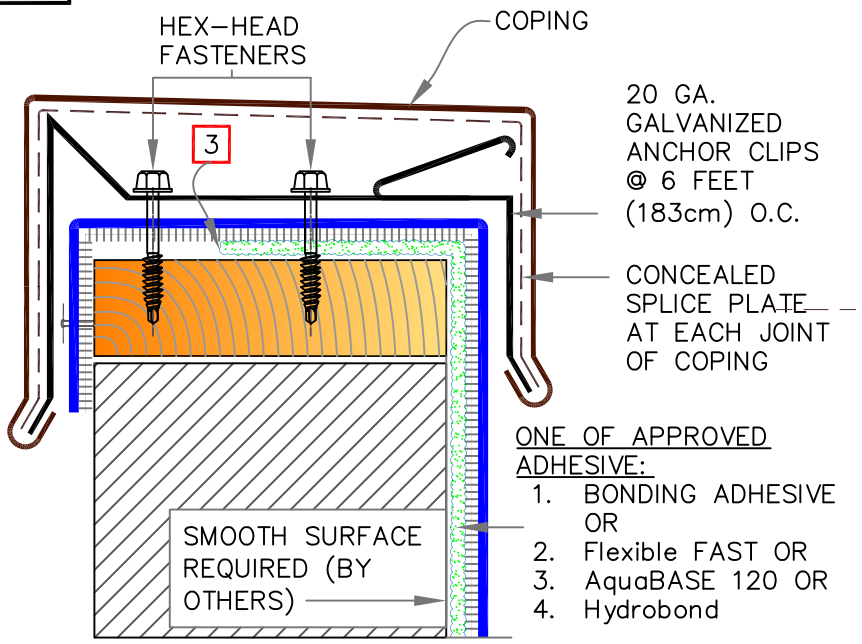
NOTES:

1. THIS DETAIL IS RECOMMENDED FOR ANY PROJECT REGARDLESS OF WARRANTY.
2. CONTINUOUS COUNTER FLASHING REQUIRED FOR WARRANTY PROJECTS EXCEEDING 20-YEARS.
3. VERTICAL JOINTS IN THE PRE-CAST PANEL AS WELL AS ALL GAPS AT THE JUNCTION OF THE TILT-UP PANEL AND ROOF DECK MUST BE FULLY SEALED TO PREVENT AIR INFILTRATION.
4. APPLY ON HARD SMOOTH SURFACE ONLY.

9E SecurEdge 200 & 300 COPINGS

NOTES:

1. MEMBRANE MUST BE EXTENDED AT CORNERS TO PROVIDE COMPLETE COVERAGE OF THE TOP WALL SURFACE. SEE 3D DETAIL 9F ON PAGE 3 OF 3.
2. REFER TO SecurEdge COPING INSTALLATION INSTRUCTION MANUAL FOR STEP-BY-STEP INSTRUCTION PROCEDURES.
3. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & TEMPORARILY SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
10 SEE NOTE(S)

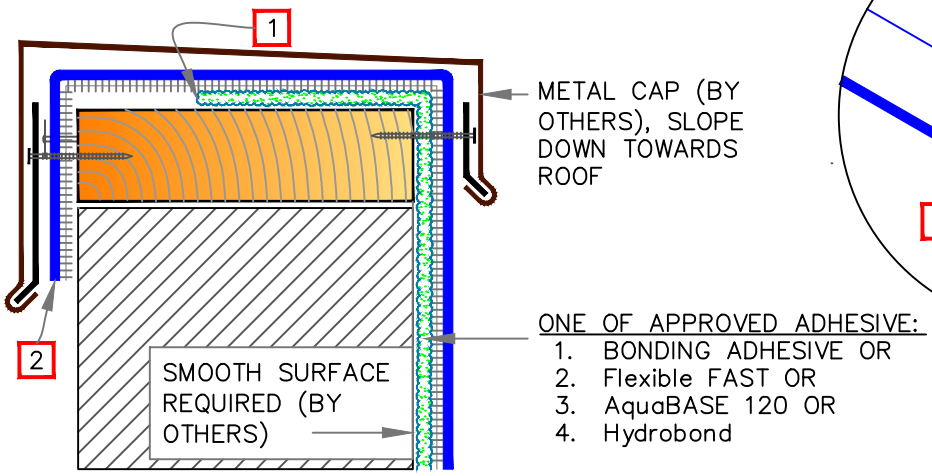
MEMBRANE TERMINATIONS (PAGE 2 OF 3)

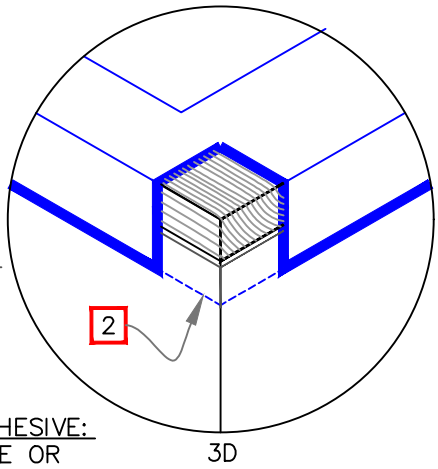
WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB-9

FLEECEBACK ADHERED

9F | SHEET METAL COPING (BY OTHERS)

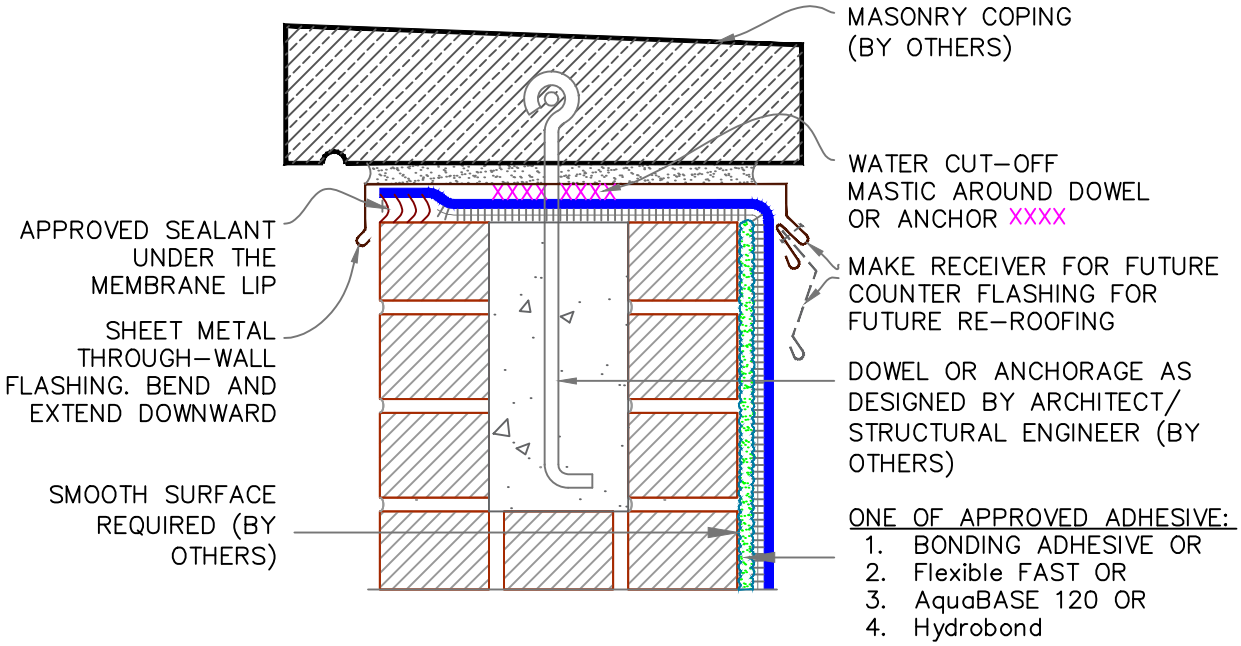




NOTES:

1. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.
2. EXTEND THE MEMBRANE BELOW THE JOINT. AT CORNERS, MEMBRANE MUST BE EXTENDED TO PROVIDE COMPLETE COVERAGE OF WALL SURFACE.

9G | MASONRY COPINGS (BY OTHERS)



XXX WATER CUT–OFF MASTIC– MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE APPROVED ADHESIVE APPROVED SUBSTRATE 0 SEE NOTE(S)	MEMBRANE TERMINATIONS (PAGE 3 OF 3) MAXIMUM WARRANTY: 30 YEARS	DETAIL NO. FB–9 FLEECEBACK ADHERED

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Carlisle SynTec Systems, a division of Carlisle Construction Materials LLC.
1285 Ritner Highway
Carlisle, PA 17013

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.
This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Carlisle Sure-Weld Single Ply TPO Roof Systems over Lightweight Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews NOA# 23-0410.08 and consists of pages 1 through 23.
The submitted documentation was reviewed by Alex Tigera.

08/15/24

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	TPO
Deck Type:	Lightweight Concrete Decks
Maximum Design Pressure	-492.5 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Sure-Weld FleeceBACK	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 100, 115 and 135 mils.
Sure-Weld AFX	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 120, 135 and 155-mils.
Sure-Weld	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thicknesses are 45 and 60-mils.
Sure-Weld EXTRA	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thickness is 80-mils.
Sure-Weld HS	various	TAS 131	Reinforced white or colored FR TPO membrane. Available sheet thicknesses are 45, 60 and 80-mils.
Sure-Weld SAT	Various	TAS 131	Self-Adhered Reinforced TPO Membrane. Available sheet thickness is 60-mil.
FAST 100 LV Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive
FAST Dual Cartridge Adhesive	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
FAST Bag in a Box Adhesive	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Flexible FAST Dual Cartridge	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Bag In A Box	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Sure-Weld Bonding Adhesive	5-gal. pail	TAS 110	Solvent-based bonding adhesive.
Aqua Base 120 Bonding Adhesive	5-gal. pail	TAS 110	Water-based bonding adhesive
Cold Applied Adhesive	5-gal. pail	TAS 110	Asphalt-modified Polyether adhesive

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Polyisocyanurate HP-H	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield HD Composite	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
H-Shield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-Shield CG	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-shield HD Composite CG	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Hunter Panels, a div of Carlisle construction Materials, LLC.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	HPX Fastener	Truss head, self-drilling, drill point, high thread fastener for use into steel and wood decks	#15 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
2.	InsulFast Fastener	Carbon steel fastener for use into steel and wood decks	#12 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
3.	Piranha Plate	Steel stress plate used with HPX Fastener for attachment of membrane	2-3/8 inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
4.	Insulation Fastening Plate	Galvalume plated steel stress plate with reinforcing ribs	3-inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
Atlantic & Caribbean Roof Consulting, LLC.	11-034	TAS 114 Appendix D	06/28/11
	11-035	TAS 114 Appendix D	06/28/11
	11-037	TAS 114 Appendix D	06/29/11
	15-002	TAS 114 Appendix D	03/30/15
	15-008	TAS 114 Appendix D	04/02/15
	15-009	TAS 114 Appendix D	04/06/15
	15-041	TAS 114 Appendix D	12/30/15
	15-043	TAS 114 Appendix D	01/04/16
Architectural Testing Inc.	ATI-37490.01	Membrane Brittleness Testing	7/7/00
Factory Mutual Research Corp.	3022174	Wind Uplift and Fire Classification	09/25/06
	3Z9A1.AM	Wind Uplift and Fire Classification	10/15/97
	1B7A5.AM	Wind Uplift and Fire Classification	02/23/98
	Approval Guide Excerpt	Wind Uplift and Fire Classifications Listings	5/00
	3011220	Class 4470	08/16/01
	3012879	Class 4470	04/04/03
Celotex Corporation Testing Services	520257	Membrane Physical Property Testing	4/19/00
SGS U.S. Testing Company Inc.	131248-R2	Membrane Ozone Resistance Testing	1/6/00
Trinity ERD	C46470.07.14-1A	TAS 131	07/16/14
	C46470.07.14-1B	TAS 131	07/16/14
	C46470.07.14-2A	TAS 131	07/30/14
	C46470.07.14-4-R1	TAS 131	07/21/14
	4r-CRL-20-SSTHP-.02.D	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.C	TAS 131	04/27/21
	4-CRL-18-002.04.18-2A	TAS 131	04/30/18
	4r-CRL-20-SSTHP-02.B.R2	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.A	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.03.A	TAS 131	04/27/21

DECK STRESS ANALYSIS CALCULATIONS/REPORTS

Engineer/Agency	Identifier	Assemblies:	Date
Randall Fowler P.E.	Letter	E(1), E(2)	04/30/15

APPROVED ASSEMBLIES

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(1): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied to the substrate only at a rate of 120 ft^2/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld AFX membrane adhered to the insulation Cold Applied Adhesive. The adhesive is applied to the substrate only at a rate of 67 ft²/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -340 psf (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(2): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel.
System Type E(1):	Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type E(2): Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete, Non-insulated, over Steel Deck

Deck Description: Celcore Cellular Lightweight Concrete, minimum 300 psi., over steel or structural concrete.

System Type F(1): Membrane adhered to lightweight concrete deck

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 18-22 ga. 33 ksi steel deck

Membrane: Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf. (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Celcore Lightweight Insulating Concrete, minimum 300 psi. over structural concrete.

System Type F(2): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -232.5 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-135 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-82.5 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi.over structural concrete.

System Type F(3): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-67.5 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-90 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(4): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(5): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(6): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft^2/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(7): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(8): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(9): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(10): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.
System Type F(11):	Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck:	Minimum 2500 psi structural concrete.
Lightweight Concrete:	The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.
Membrane:	Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Maximum Design Pressure:	-217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over structural concrete.

System Type F(12): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 3000 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 250 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld SAT (Self-Adhered Technology) membrane fully adhered to the lightweight concrete. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -282.5 psf.; (See General Limitation #9)

LIGHTWEIGHT INSULATING CONCRETE SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.

3. For Systems where specific lightweight insulating concrete si referenced consult current lightweight insulating concrete NOA for specific deck construction and limitations. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
11. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE

MIAMI-DADE COUNTY

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES

http://www.miamidade.gov/building/home.asp

9/11/2025 9:27:00 AM

Contact Name:	Janiel Arias
Contact Email:	ARIASJ@MIAMILAKES-FL.GOV
Tracking Number:	3225021257
Reviews to rework:	DASB
Comments:	

MIAMI-DADE COUNTY

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES

http://www.miamidade.gov/building/home.asp

9/17/2025 12:10:24 PM

Tracking #	Process #	Permit #
3225021257	M2025021257	2025072594

THIS COPY OF PLANS MUST BE AVAILABLE ON BUILDING SITE OR AN INSPECTION WILL NOT BE MADE.

Process #	Review	Disposition	Reviewer	Date
M2025021257	DERM ASBESTOS	A	GALLO, GUIDO	9/16/2025
M2025021257	DERM CORE	A	PADRON, JORGE	8/4/2025
M2025021257	FIRE	N	RODRIGUEZ, LILIA	8/5/2025
M2025021257	IMPACT FEES	N	IDARRAGA, MELINA	8/5/2025
M2025021257	UPFRONT FEES	A	WEB APPLICATION ID	8/4/2025

Disclaimer.

Subject to compliance with all Federal, State, and County Laws, rules and regulations. Miami-Dade County assumes no responsibility for accuracy of or results of these plans.

NOTICE: In addition to the requirements of this permit, there may be additional restrictions applicable to the property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies or federal agencies.

Stamp Name	Trade	Disposition	Stamp Description
Approved	DASB	A	Approved
Not Applicable	FIRE	N/A	Not Applicable

Mikel Isaac @ HotMail.com

NOTE: ALL SHEETS MUST BE REVIEWED

MIAMI-DADE COUNTY DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES
Herbert S. Saffir Permitting and Inspection Center
11805 SW 26th Street (Coral Way) • Miami, Florida 33175-2474 • (786) 315-2000

APPLICATION FOR MUNICIPAL PERMIT APPLICANTS THAT REQUIRE PLAN REVIEW FROM MIAMI-DADE FIRE RESCUE AND/OR ENVIRONMENTAL SERVICES

M20250212S7 SRF2025-2102 3225021257

PROVIDE MUNICIPAL PROCESS NUMBER HERE

LOCATION OF IMPROVEMENTS

Job Address: 14001 NW 82 Avenue
Folio: 32-2022-040-0020
Lot: _____ Block: _____
Subdivision: _____ PBpg: _____
Metes and bounds: _____

CONTRACTOR INFORMATION

Contractor No.: CCC1331270
Last four (4) digits of Qualifier No.: _____
Contractor Name: NATIONS ROOF
Qualifier Name: Ian Alan Brenner
Address: 691 Garden Commerce PKY STE 170
City: Winter Garden State: Fla Zip: 34787

TYPE OF IMPROVEMENTS

[ ] New Construction on Vacant Land
[ ] Alteration Interior
[X] Alteration Exterior
[ ] Relocation of Structure
[ ] Enclosure
[ ] Repair
[ ] Repair Due to Fire
[ ] Demolish
[ ] Shell Only
[ ] Addition Attached
[ ] Addition Detached
[ ] Re-Roof
[ ] Foundation Only
[ ] Tent

Current use of property: Hospital
Description of Work: Installation of a new roof
Sq. Ft.: 40,000 Units: 1 Floors: 1
Value of Work: $60,000

PERMIT TYPE

[✓] MBLD* Category 01
[ ] MELE
[ ] MPLU
[ ] MLPG
[ ] MMEC
[ ] FIRE

REVIEW STATUS

[ ] Chg. Contractor
[ ] Re-Issue
[ ] Re-Stamp
[ ] Revision
[ ] Not Applicable for Fire

PROPERTY OWNER'S INFO

Owner: TGC LL8 LLC
Address: 6843 Main Street
City: Miami Lakes State: FLA Zip: 33015
Phone: 3057969695
Last four (4) digits of Owner's Social Security No.: N/A

PERMIT CONTACT

Name: Mikel Isaac
Address: 12101 NW 4th Street
City: Plantation State: FLA Zip: 33325
Phone: 3057969695

ARCHITECT / ENGINEER

Owner: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____

FIRE SPECIAL REQUEST PLAN REVIEW (SRI)

I am requesting a Special Request Plan Review (SRI) to be scheduled as soon as possible. There is a minimum charge of one-hour. Please contact the Fire Department for current rate.

1st Request: Mikel Isaac Date: 7/16/2025
2nd Request: _____ Date: _____
3rd Request: _____ Date: _____

If the applicant is a known named violator with: unpaid civil penalties; unpaid administrative costs of hearing; unpaid County investigative, enforcement, testing, or monitoring costs; or unpaid liens, any or all of which are owed to Miami-Dade County pursuant to the provisions of the Code of Miami-Dade County, Florida, a hold on the review may be placed on this application.

Miami Dade County Department of Regulatory and Economic Resources - Job Copy
3225021257 - 9/17/2025 12:10:24 PM
MDC APP.pdf

Examiner	Date Time Stamp	Trade	Stamp Name
GALLO, GUIDO	9/16/2025 3:41:40 PM	DASB	Approved
RODRIGUEZ, LILIA	8/5/2025 7:06:24 PM	FIRE	Not Applicable

CARLISLE
SYNTEC SYSTEMS

Select Medical, Miami Lakes

Select Medical, Miami Lakes

Table of Contents

November 11, 2024

NATIONS ROOF SOUTHERN FLORIDA LLC - 270208
3772 N.W. 126 AVENUE
CORAL SPRINGS, FL 33065
United States

Project: Authorized Applicator Letter

To Whom It May Concern:

This letter is to confirm that NATIONS ROOF SOUTHERN FLORIDA LLC - 270208 in CORAL SPRINGS, FL is a Carlisle Authorized Applicator.

If you should have any further questions, please feel free to contact me.

Sincerely,

Shannon Wyatt
Southeast Regional Sales Manager

CARLISLE SYNTEC SYSTEMS

FleeceBACK® TPO Membranes

Overview

FleeceBACK TPO membranes are manufactured using a hot-melt extrusion process for complete scrim encapsulation. Once the TPO is reinforced and enhanced with fleece, the total sheet thicknesses available are 100-, 115-, and 135-mils, creating a very tough, durable and versatile sheet that is ideal for re-roofing or new construction projects. FleeceBACK TPO sheets are chlorine free and plasticizer free with excellent chemical resistance to acids, bases, restaurant oils, and greases.

All FleeceBACK TPO membranes utilize Octaguard XT™ weathering package technology to withstand extreme durability testing intended to simulate exposure to severe climates. FleeceBACK TPO's advanced polymerization technology combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene.

FleeceBACK TPO membranes are intended to be used with adhered or mechanically fastened roofing systems. FleeceBACK TPO is ideally suited for roof garden and solar panel applications and projects demanding superior wind uplift resistance due to its added toughness and durability. FleeceBACK TPO is also a great solution for buildings requiring low noise and odors during roofing application.

Features and Benefits

- No VOCs, low odor, low noise, and speed of application minimizes occupied building disruptions
- Superior wind uplift performance and ratings (up to an FM 1-990) due to a mechanical bond between fleece and adhesive
- 75% fewer seams than Modified Bitumen
- Wide window of weldability
- Fleece reinforcement adds toughness, durability, and enhanced puncture resistance
  - 115-mil membrane delivers 33% greater puncture resistance and 33% greater breaking strength than 60-mil TPO
  - Greater puncture resistance than Modified Bitumen
- Excellent hail damage resistance:
  - Passes FM's severe hail test
  - Passes UL-2218 Class 4 rating
  - Passes National Bureau of Standards – 23 Ice Ball test up to 3"-diameter hail with the membrane cooled to 32°F
- Standard Colors:

White | Gray | Tan

- Special Colors:

Slate Gray | Med Bronze | Terra Cotta | Patina Green | Rock Brown

*Sure-Weld® HS Special Color TPO membranes are available in limited sizes. Refer to Carlisle's Sure-Weld HS TPO Special Color Program Sell Sheet for details.

Sustainable Attributes

Carlisle SynTec Systems' focus has always been innovation - Innovation to solve problems, improve performance, reduce labor, and above all, improve sustainability. Carlisle is committed to driving sustainable and efficient processes in the design and manufacturing of our products.

- Up to 10% pre-consumer recycled content
- Free of Living Building Challenge red list chemicals
- NSF P151 Certification for rainwater catchment*
- 3rd-party verified Environmental Product Declaration available

*Plant 91/White only

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO Membranes

Optional APEEL™ Protective Film

Shield Carlisle's FleeceBACK TPO membrane from dirt and scuffs during installation with APEEL Protective Film. Factory-applied and easy to remove, APEEL eliminates the need for rooftop cleaning upon project completion.

- Ideal for re-roofing, re-cover, and new construction projects
- Simple and easy to remove
- Saves time and money when compared to pressure washing
- Protecting from dirt maintains maximum membrane reflectivity and long-term performance

Installation

Simply order membrane with APEEL, install, and remove the film to reveal a clean, new roof.

- APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance .
- When the installation of the entire roofing system is complete, remove and discard the APEEL Protective Film.

Installation

Adhered Roofing System

Insulation is mechanically fastened or adhered. Spray-apply, splatter, or extrude Flexible FAST™ Adhesive to the substrate and allow foam to "string/body" approx 1–2 minutes prior to setting FleeceBACK TPO into the Flexible FAST Adhesive. Roll FleeceBACK TPO membrane with a 30"-wide, 150-pound weighted roller to ensure full embedment. Splices are hot-air welded. End laps are butted and sealed with reinforced membrane or a head sheet may be utilized.

Review Carlisle specifications and details for complete installation information, including mechanically fastened options.

Precautions

- Use proper stacking procedures to ensure sufficient stability.
- Exercise caution when walking on wet membrane.
- Sunglasses that filter out ultraviolet light are strongly recommended, as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
- White surfaces reflect heat and may become slippery due to frost and ice accumulation.
- Care must be exercised when working close to a roof edge when the surrounding area is snow covered.
- FleeceBACK TPO membrane rolls must be tarped and elevated to keep dry prior to installation. If the fleece gets wet, use a wet vac system to help remove moisture from the fleece. DO NOT INSTALL MEMBRANE IF FLEECE IS WET.
- FleeceBACK TPO membrane exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

Supplemental Approvals, Statements and Characteristics:

1. FleeceBACK TPO meets or exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.
2. Radiative Properties for Cool Roof Rating Council (CRRC) and LEED.
3. FleeceBACK TPO membranes conform to requirements of the US E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
4. FleeceBACK TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 100-mil was watertight after an impact energy of 20 joules, 115-mil was watertight after 25 joules, and 135-mil was watertight after 32.5 joules.

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO
Membranes

LEED® Information

Pre-consumer Recycled Content	10%		
Post-consumer Recycled Content	0%		
Manufacturing Location	Senatobia, MS; Tooele, UT		
Solar Reflectance Index	White: 99	Gray: 52	Tan: 86

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

Physical Property	Test Method	White	Tan	Gray
CRRC – Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC – Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC – Initial thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED – Thermal emittance	C1371	0.90	0.86	0.85
Solar Reflectance Index (SRI) – Initial	ASTM E1980	99	86	52
Solar Reflectance Index (SRI) – Aged 3 Years	ASTM E1980	85	77	49

Carlisle Extreme Testing – Heat Aging

		ASTM Requirement	FleeceBACK TPO Requirement
ASTM Test	240°F	32 weeks*	>128 weeks

*Comparable to 3,120 weeks (6 years) at 185°F for 8 hrs/day.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Carlisle Extreme Testing – Environmental Cycling

–10 days heat aging at 240°F (116°C) followed by 5 days water immersion at 158°F (70°C)
Followed by 5,040 kJ/m² (2000 hrs. at 0.70 W/m² irradiance) xenon-arc exposure

Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion followed by xenon-arc exposure.

Carlisle Testing – Q-Trac

	ASTM D6878 Requirement	Sure-Weld Requirement
ASTM TEST N/A	N/A	Equivalent of 40 years of exposure

Radiative Properties (Initial) for Special Colors

	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.

EXTREME Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose." Carlisle's goal is to produce TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM D6878.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Carlisle requires its Sure-Weld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO Membranes

Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (Min.)	FleeceBACK TPO Typicals
Tolerance on Nominal Thickness, %	ASTM D751	±10	±10
Thickness over Fleece, min 100-mil (2.54 mm) 115-mil (2.92 mm) 135-mil (3.43 mm)	 — — —	 — — —	 .045 (1.14) .060 (1.52) .080 (2.03)
Weight, lbm/ft² 100-mil 115-mil 135-mil	 — — —	 — — —	 0.27 0.33 0.46
Breaking Strength, min, lbf (kN) 100-mil 115-mil 135-mil	ASTM D751 Grab Method	220 (1)	 375 (1.7) 450 (2) 500 (2.2)
Elongation at break of internal fabric, %	ASTM D751	15	25
Tearing Strength, min, lbf (N) 100- & 115-mil, 135-mil	ASTM D751 B Tongue Tear	 55 (245)	 100 (445)
Puncture Resistance, Joules 100-mil 115-mil 135-mil	ASTM D5635	 — — —	 20 25 32.5
Puncture Resistance, lbf 100-mil 115-mil 135-mil	FTM 101C Method 2031	 350 400 425	 450 525 600
Brittleness point, max, °F (°C)	ASTM D2137	-40 (-40)	-50 (-46)
Linear Dimensional Change, %	ASTM D1204	± 1 max	-0.2 typical
Field Seam Strength, lbf/in. (kN/m) ASTM D1876 tested in peel 100-mil 115-mil 135-mil	ASTM D1876	 25 (4.4) 25 (4.4) 40 (7.0)	 50 (8.8) 60 (10.5) 70 (12.3)
Water Vapor Permeance, Perms	ASTM E96 Proc B	—	0.10 max, 0.05 typical
Resistance to Microbial Surface Growth, Rating (1 is very poor, 10 is no growth)	ASTM D3274	—	9-10 typical
Properties after heat aging–ASTM D573, 670 hrs. at 240 °F Breaking strength, % retained Elongation reinf. % retained Tearing Strength, % retained Weight Change, %	ASTM D573	 — — — —	 90 min 90 min 60 min ± 1.0 max
Ozone Resistance 100 pphm, 168 hours	ASTM D1149	No cracks	No cracks
Resistance to Water Absorption After 7 days immersion @ 158°F (70°C) Change in mass, max, % (one side)	ASTM D471	± 3.0	0.90
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m² irradiance, 80°C black panel temp. 100-mil 115-mil 135-mil	ASTM G155	No cracks; No loss of breaking or tearing strength	No cracks; No loss of breaking or tearing strength 17,640 kj/m² 20,160 kj/m² 27,720 kj/m²

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CARLISLE
SYNTEC SYSTEMS

Flexible FAST™ Dual Tank Adhesive

HFC-FREE

Productivity Boosting Features and Benefits:

- » Reduces labor by eliminating equipment maintenance and breakdowns
- » Application time reduced up to 15% when compared to low-pressure dispensing machines
- » Increased productivity when Dual Tanks are used simultaneously (each additional Dual Tank can increase productivity up to 100%)

Overview

Carlisle's Flexible FAST Dual Tank Adhesive is a two-component, construction-grade, low-rise polyurethane adhesive designed for bonding Carlisle's FleeceBACK® membranes and/or insulation to various substrates. Now featuring an HFO blowing agent, Flexible FAST Dual Tanks have improved characteristics compared to products that use an HFC blowing agent.

Flexible FAST Dual Tank Adhesive is compatible with: HP Recovery Board, InsulBase® Polyiso, SecurShield® Polyiso, SecurShield HD, SecurShield HD Plus, expanded polystyrene (EPS), extruded polystyrene (XPS), spray polyurethane foam (new or scarified SPF), DensDeck®, SECUROCK®, and StormBase®.

Compatible deck types include concrete, cellular lightweight concrete (LWC), gypsum, cementitious wood fiber, wood, and painted or galvanized steel. Flexible FAST Dual Tank Adhesive is also compatible with the following roofing materials: smooth (previously exposed) BUR, mineral cap sheets, smooth (previously exposed) or granulated mod bit, aged EPDM, aged Hypalon®, and Carlisle's VapAir Seal™ 725TR Air and Vapor Barrier.

Flexible FAST EU Dual Tanks meet the requirements for pressurized tanks for the European Union. The features, benefits, installation, storage, and precaution criteria listed on this PDS also apply to Flexible FAST EU Dual Tanks.

Features and Benefits

- » VOC free, self-contained system
- » HFO blowing agent
  - Green alternative, offering low GWPs and zero ODPs
  - Easier and more efficient splatter application; dispenses in a more uniform pattern
  - Improved coverage rates by up to 16% versus other canister based insulation and membrane adhesives
  - Improved rise and cell structure
  - Improved and more obvious string time
- » Non-penetrating, low noise, low odor
- » Superior wind uplift performance
- » Added puncture resistance of 33-50% compared to competitive two-component low-rise adhesives
- » Consistent elongation properties up to 150%
- » FM, UL, Miami Dade and Florida building approvals

Flexible FAST Dual Tank Adhesive

Coverage Rate

FleeceBACK membrane or insulation attachment to lightweight concrete, concrete, plywood and OSB, plank wood, steel, smooth BUR, mod-bit, mineral cap sheets, SPF, or multiple layers of insulation:

(Application rates may vary depending on ambient temperatures, surface, and substrate absorption rate.)

Approximate Coverage Rate (Sq. Ft.)	Splatter*	4" o.c.	6" o.c.	12" o.c.
	2,600-2,800	1,100-1,300	1,700-1,900	3,500-3,700

*Dual Tank splatter approved for membrane attachment to smooth flat surfaces only. Dual Tank splatter is not approved for insulation attachment.

May vary depending on climate, temperature, humidity, and equipment. Please consult Carlisle for project-specific bead widths and spacing.

Application

Substrate Preparation

1. The surface to which adhesive is to be applied shall be dry, free of fins, protrusions, sharp edges, loose or foreign material, oil, and grease. Depressions greater than ¼" shall be filled with adhesive or other approved patching material. All sharp projections shall be removed.
2. Seal gap between the wall/penetrations and concrete deck with VapAir Seal 725TR, Flashing Foam, or other suitable material to avoid condensation or air infiltration issues.
3. Apply Flexible FAST Dual Tank Adhesive when substrate and ambient temperature are 25°F or above.
4. Bead spacing is minimum. Depending on warranty length and wind coverage, ribbon spacing may be reduced. Refer to published specification and warranty.
5. Previously unexposed asphalt must be primed with CAV-GRIP® III.

Setup

Note: When spraying the dispensing unit for the first time, or when starting a new kit, Carlisle recommends that users trigger the gun only a quarter to halfway open until the desired output and spray pattern is achieved. This allows complete control of the flow rate and spray pattern that best fits the application.

1. Spray gloves, long sleeves, and protective glasses should be worn during setup and dispensing.
2. In colder temperatures, it is recommended to utilize heated blankets to ensure the tanks are kept warm while dispensing the product.
3. Shake kits for 15 – 20 seconds before use.
4. Connect hoses to tanks prior to opening the A and B tank valves.
5. Before attaching the nozzle to the dispensing unit, apply a generous amount of petroleum jelly to the face. This will help to prevent contamination by cured foam or chemicals and will help to keep the sealing ports clean. Detailed instructions for attaching the nozzle are included in packaging for A-side tanks.
6. **When applying Flexible FAST Dual Tank Adhesive as a bead, the 14" extension nozzle is required and must be attached to the end of the gun tip before dispensing adhesive. Attach the nozzle extension by rotating the extension tip clockwise onto the end of the gun tip.**
7. **When applying Flexible FAST Dual Tank Adhesive as a splatter application, the 14" extension nozzle should not be used. Splatter application can be achieved by triggering the gun from a distance of 2' – 3' off the deck. Adhesive should be dispersed using a horizontal back and forth motion, achieving 50% coverage of the substrate at 3.75 lbs/sq.**
8. Once the trigger is released, it MUST BE REACTIVATED WITHIN 15 SECONDS or a new nozzle must be installed. Failure to do this could result in chemical leakage, spills, or splashes which can ruin the dispensing unit and/or hoses.
9. After releasing the trigger, activate the trigger safety to prevent accidental discharge.
10. The dispensing unit face can be kept clean by using petroleum jelly on the face or using a soft cloth to remove residue.
11. **Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.**

Storage

1. Close tank valves.
2. Do not store at temperatures above 100°F or below 40°F for long periods of time.
3. The used nozzle should be removed and the dispensing unit should be cleaned with a splice wipe to help keep outlet ports clean and free from any dust, dirt, or chemicals that can affect the proper sealing of the nozzle. ALWAYS engage the trigger safety and close all supply valves during storage. Do not purge adhesive from hose.
4. Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.

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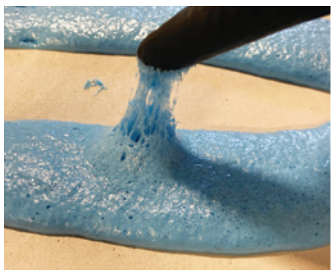
CARLISLE SYNTEC SYSTEMS

Flexible FAST Dual Tank Adhesive


Application of petroleum jelly to spray gun


Shaking of A-side and B-side tanks


Apply using extension nozzle


Performing the string-time test

Re-use of Dispensing Unit After Storage

1. Check the face of the dispensing unit to ensure outlet ports are clear and the face of the unit is free from dirt, chemicals, or other debris. If necessary, use a soft cloth or rag to remove any cured foam or chemicals from the face of the dispensing unit. The use of petroleum jelly is recommended to cover the face of the dispensing unit to prevent further contamination or if chemical is accidentally leaked into this area.
2. Attach a new or cleaned nozzle to the dispensing unit.
3. Shake kits for 15–20 seconds before use.

FleeceBACK Membrane Attachment
Slide-in Method:

1. Unroll FleeceBACK sheet and position. Fold the sheet back in half lengthwise (end-to-end).
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once "string time" occurs, gradually feed FleeceBACK sheet into Flexible FAST Adhesive, checking for "string/body" every few feet. Stop feeding FleeceBACK sheet into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Roll-in (Mod Bit) Method:

1. Keeping the FleeceBACK sheet on the core, position roll of FleeceBACK membrane at the designated starting point.
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once "string time" occurs, gradually roll FleeceBACK membrane into Flexible FAST Adhesive, checking for "string/body" every few feet. Stop rolling FleeceBACK into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Insulation Attachment:

1. Dispense Flexible FAST Dual Tank Adhesive at the appropriate coverage rate. For steel decks, beads of adhesive must run parallel with, and be on top of, all of the flutes.
2. Place insulation boards (maximum 4' x 4' insulation boards when adhesive is dispensed at 12" o.c. or when boards exceed 4" thickness, or 4' x 8' insulation boards when adhesive is applied at 4", or 6" beads) into adhesive after allowing it to rise and develop "string/body". String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.
3. Bead spacing parameters for 5, 10, 15, or 20-year 55-mph warranties: (Contact Carlisle Project Review for bead spacing on higher mph warranties and 30-year warranty projects).

Building Height	Bead Spacing (Perimeter)	Bead Spacing (Field)
0' – 25'	6" o.c. - 4'	12" o.c.
26' – 50'	6" o.c. - 8'	12" o.c.
51' – 75'	6" o.c. - 12'	12" o.c.
76' – 100'	6" o.c. - 16'	12" o.c.
101' or greater	6" o.c. - 24'	12" o.c.

4. Designate one person to walk boards into place and then roll with a 150-lb. segmented roller 5 to 7 minutes from the initial adhesive application. Boards may be temporarily weighted or relief cut where necessary to keep boards in constant contact with the adhesive until adhesive is cured.
5. At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of boards to ensure a tight bond has been created and maximum contact has been achieved.

Review Carlisle specifications and details for complete application information.

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Flexible FAST Dual Tank Adhesive

Disposal Procedures:

1. Eye protection and impervious gloves MUST be worn during disposal procedures.
2. **DO NOT dispose of, puncture, or incinerate cylinder tanks while under pressure.**
3. When the job is completed or tanks are empty, pressure must be released from the tanks.
4. With the tank valves open, trigger Dual Tank gun open 100%, discharging remaining adhesive, as well as pressure and propellant, into a lined waste container.
5. After cylinders are empty of all pressure and propellant, tanks must be vented. **CAUTION: tanks could still be under pressure.**
6. Close valves and release remaining pressure from hoses. Remove hoses, flip tank upside down, and with tank valve positioned AWAY from face and others, slowly reopen tank valve and allow excess pressure and or chemical to drain into a lined waste container and allow pressure to completely vent.

   CAUTION: All pressure MUST be vented 100%. Empty tanks could contain potential vapor toxicity hazard. Provide adequate ventilation or respiratory protection (consult SDS).
7. Once cylinder is empty and vented, carefully puncture the friable disc on the top of the cylinder. Cylinders should sit for 30 minutes prior to disposal.
8. DISPOSE OF EMPTY CYLINDERS AND EXCESS CHEMICAL ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
9. For recycling information, check with local municipality, or contact Clean Earth.

Clean Earth Locations

Address	City/State/Zip	Phone Number
1689 Shar-Cal Road	Calvert City, KY 42029	270-605-2105
1750 Morgantown Industrial Park	Morgantown, WV 26501	304-292-0659
402 Webster Chapel Road	Glencoe, AL 35905	800-739-9156
30677 Huntwood Avenue	Hayward, CA 94544	510-429-1129
1733 Morgan Road	Modesto, CA 95358	510-429-1129
4132 Pompano Road	Charlotte, NC 28216	704-395-9559

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Tomball, TX

For more information on substrate compatibility, please refer to the chart found on the Flexible FAST Adhesive Product Data Sheet.

Precautions

- **Flexible FAST Dual Tank splatter application is NOT approved for walls.**
- Review the applicable Safety Data Sheet (SDS) for complete safety information prior to use.
- The foam produced is an organic material. It must be considered to be combustible and may constitute a fire hazard. Foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with prefilters and solvent-resistant cartridges if concentrations of MDI exceed the TLV or are unknown. Proper safety training is essential for all persons involved in the application process. If inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long sleeves and pants. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil.

  NOTE: Nitrile gloves are required when handling Part A directly.
- Extended storage temperatures in excess of 90°F may affect product shelf life.
- Do not store in temperatures below 40°F.
- Do not allow material to freeze.
- If the components are stored at temperatures lower than 70°F, restore to 70°F before using adhesive.
- High-slope applications require adhesive to be applied to the back of the insulation board on a flat surface.
- KEEP OUT OF THE REACH OF CHILDREN.

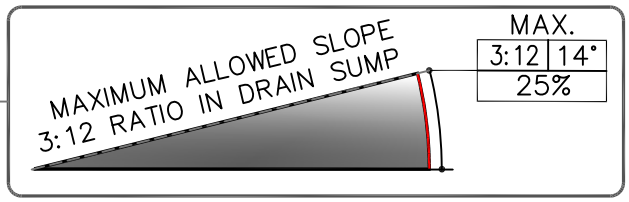
Typical Properties and Characteristics

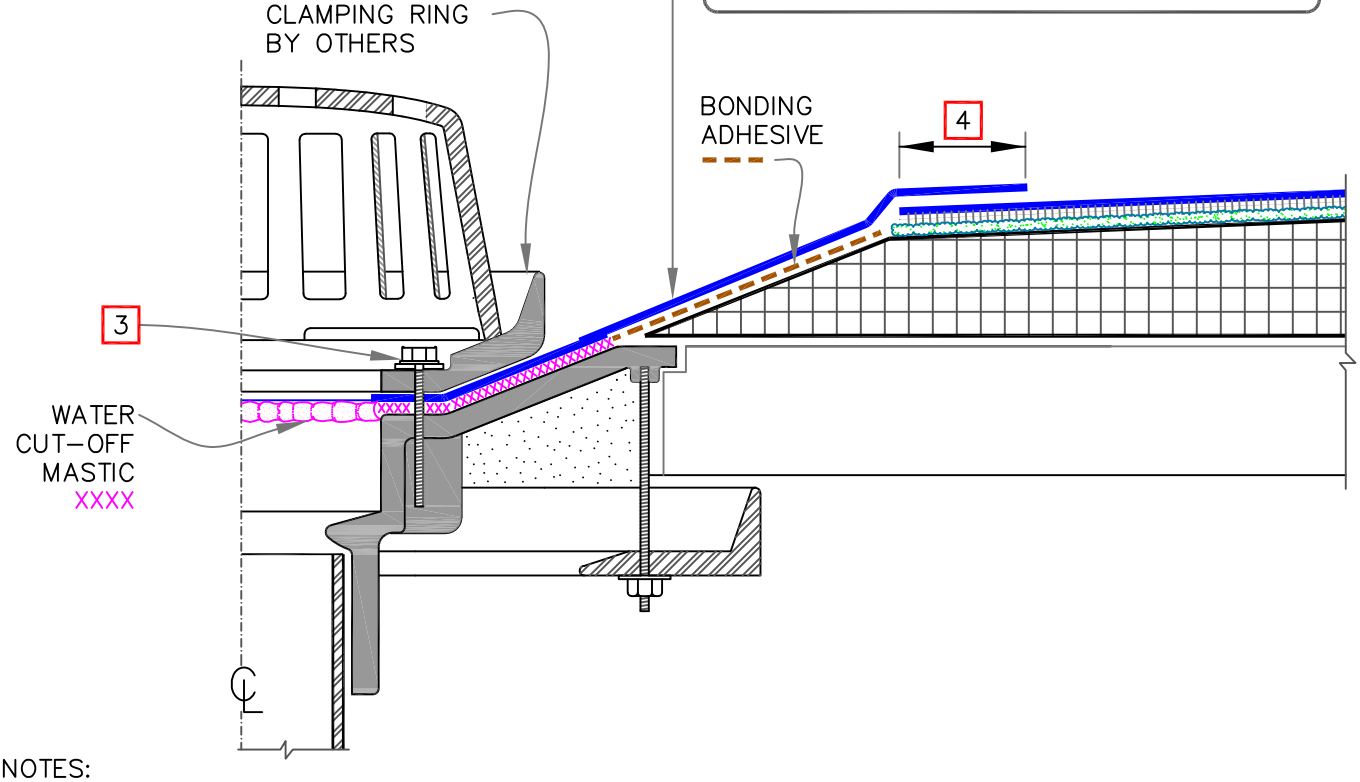
	Dual Tank-A	Dual Tank-B
Base	Polymeric Isocyanate	Polyols, Surfactants, Catalyst
Average Net Weight	9.8 lbs/gal	9.3 lbs/gal
Packaging	62 lbs (28.1kg)	54 lbs (24.5 kg)
Shelf Life	1 year	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

CAUTION

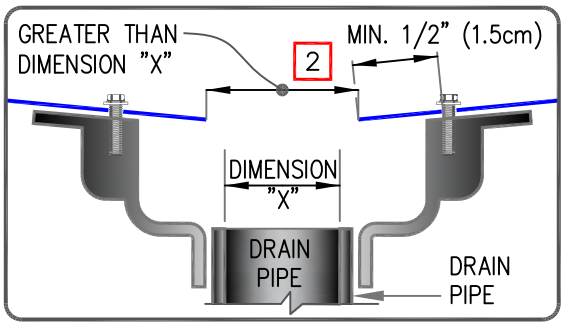
EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE FIELD APPLIED SecurTAPE FOR PROJECTS WITH 20, 25 & 30-YEAR WARRANTIES.





NOTES:

1. REMOVE EXISTING LEAD, FLASHING MATERIAL & ENSURE THE DRAIN RING IS COMPLETELY CLEAN DOWN TO BARE METAL.
2. THE HOLE IN THE MEMBRANE SHALL EXCEED THE DIAMETER OF THE DRAIN PIPE, BUT SHALL BE NO LESS THAN 1/2" (1.5cm) FROM THE ATTACHMENT POINTS OF THE DRAIN CLAMPING RING.
3. ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON WATER CUT-OFF MASTIC.
4. SPLICES SHALL BE COMPLETED USING MIN. 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1-1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.
5. FIELD SPLICES MUST BE LOCATED AT LEAST 6 INCHES (15cm) OUTSIDE THE DRAIN SUMP.
6. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT-EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.
7. ROOF DRAIN SIZE AND NUMBER OF DRAINS SHALL BE IN ACCORDANCE WITH THE LOCAL CODES.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

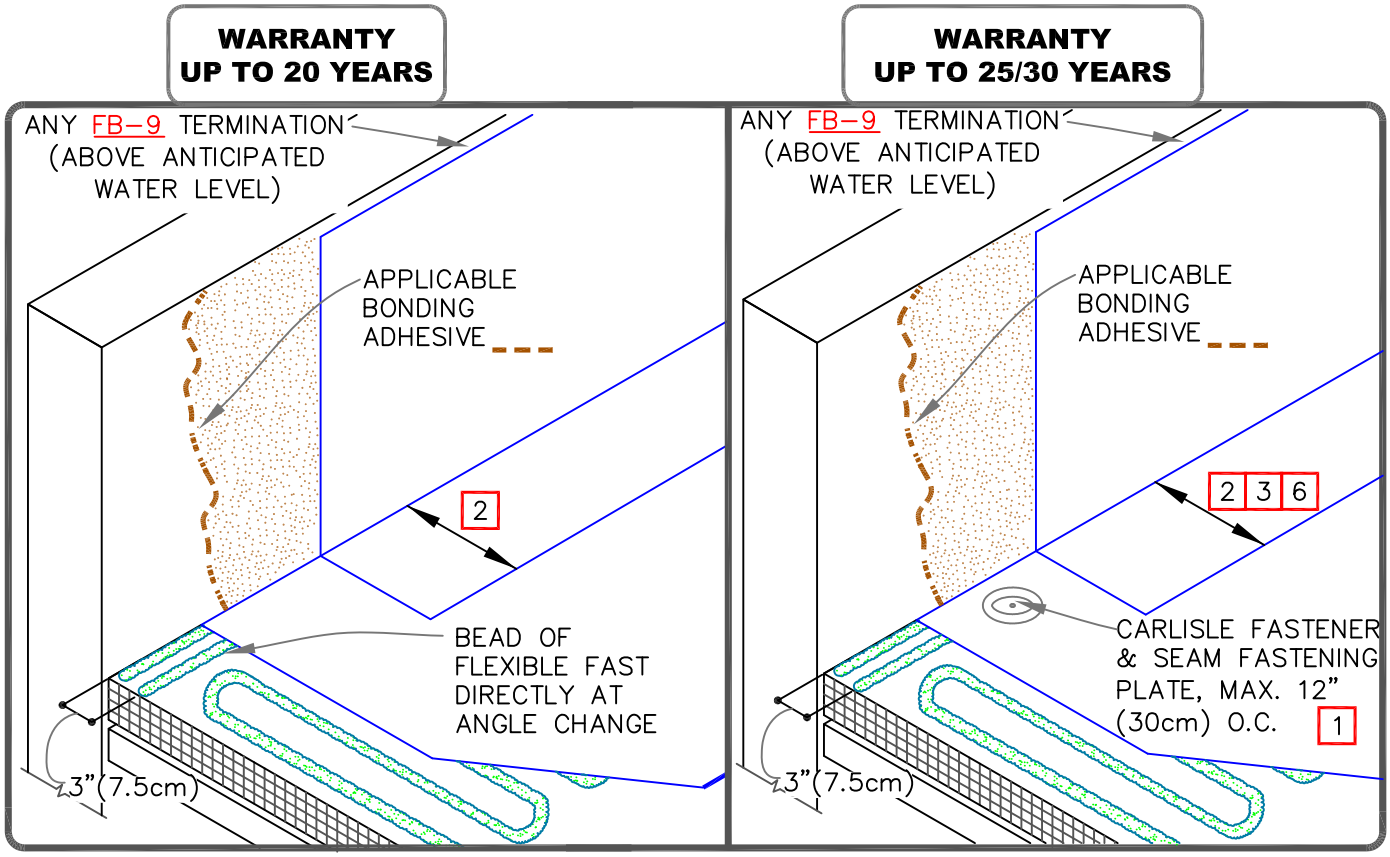
ROOF DRAIN WITH SEPARATE TARGET SPLICE

MAXIMUM WARRANTY: 30 YEARS

DETAIL NO.
FB-6B.1
FLEECEBACK ADHERED

CAUTION

REFER TO DETAIL FB–12C WHEN USING AQUA BASE 120 ADHESIVE OR HYDROBOND.



NOTES:

1. MECHANICALLY FASTENED BASE SECUREMENT IS REQUIRED WHEN ANY ONE OF THE FOLLOWING MAY OCCUR:
   - 1.1. SPECIFIED WARRANTIES GREATER THAN 20–YEARS.
   - 1.2. WARRANTY WIND SPEEDS GREATER THAN 90MPH.
   - 1.3. PROJECTS WITH CONTROL OR EXPANSION JOINTS OR ANTICIPATED BUILDING MOVEMENT.
   - 1.4. WHEN FLEECEBACK MEMBRANE IS INSTALLED DIRECTLY OVER AN EXISTING SINGLE–PLY ROOF.

2. SPLICES SHALL BE COMPLETED USING MINIMUM 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1–1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.

3. EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE SECURTAPE FOR PROJECTS WITH 25 AND 30–YEAR WARRANTIES.

4. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT–EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.

5. WHEN USING 60 OR 80–MIL REINFORCED THERMOPLASTIC MEMBRANE FLASHING, APPLY A 4–1/2" (11cm) DIAMETER THERMOPLASTIC "T–JOINT" COVER AT ALL FIELD SPLICE INTERSECTIONS.

6. 3" AND 6" FIELD APPLIED TAPE MUST BE OUTSIDE PLATES.

7. ALL EPDM SPLICE INTERSECTIONS REFER TO FB–2 DETAILS.

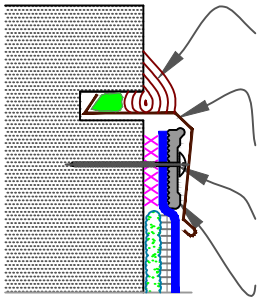
FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

PARAPET/CURB WITH SEPARATE MEMBRANE – BEAD APPLIED

MAXIMUM WARRANTY: SEE EACH DETAIL

DETAIL NO.
FB–12A.1B
FLEECEBACK ADHERED

9A MECHANICAL TERMINATION WITH COUNTER FLASHING



CARLISLE UNIVERSAL SINGLE-PLY SEALANT OR SEALANT (BY OTHERS)

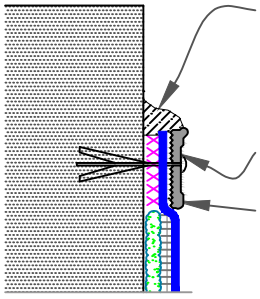
METAL COUNTER-FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

THREADED FASTENERS OR CARLISLE HP TERM BAR NAIL-IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 30 YEARS | **SEE INSET A**

9B MECHANICAL TERMINATION



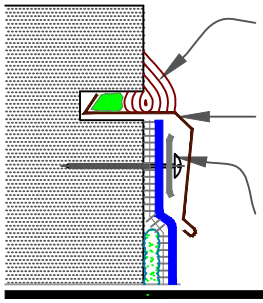
CARLISLE UNIVERSAL SINGLE-PLY SEALANT OR SEALANT (BY OTHERS)

CARLISLE HP TERM BAR NAIL-IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 20 YEARS | **SEE INSET A**

9C COUNTER FLASHING TERMINATION



CARLISLE UNIVERSAL SINGLE-PLY SEALANT OR SEALANT (BY OTHERS)

METAL COUNTER-FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

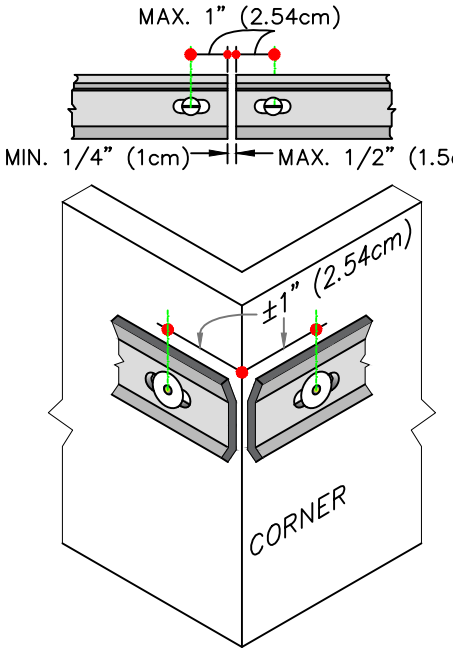
FASTEN MEMBRANE @ 12" (30cm) O.C. MAX. USE GALVANIZED WASHERS, MIN. 1", (2.54cm) DIAMETER

NOTE:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER-FLASHING, USE EPDM WASHERS, APPLY WATER CUT-OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.

WARRANTY UP TO 10 YEARS

INSET A



NOTES:

1. APPLY ON HARD SMOOTH SURFACE ONLY; NOT FOR USE ON EXPOSED WOOD.
2. DO NOT WRAP TERMINATION BAR AROUND CORNERS.
3. DETAIL 9D ON PAGE 2 OF 3 MUST BE USED AT VERTICAL JOINTS IN PANEL WALLS.

xxx WATER CUT-OFF MASTIC- MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
0 SEE NOTE(S)

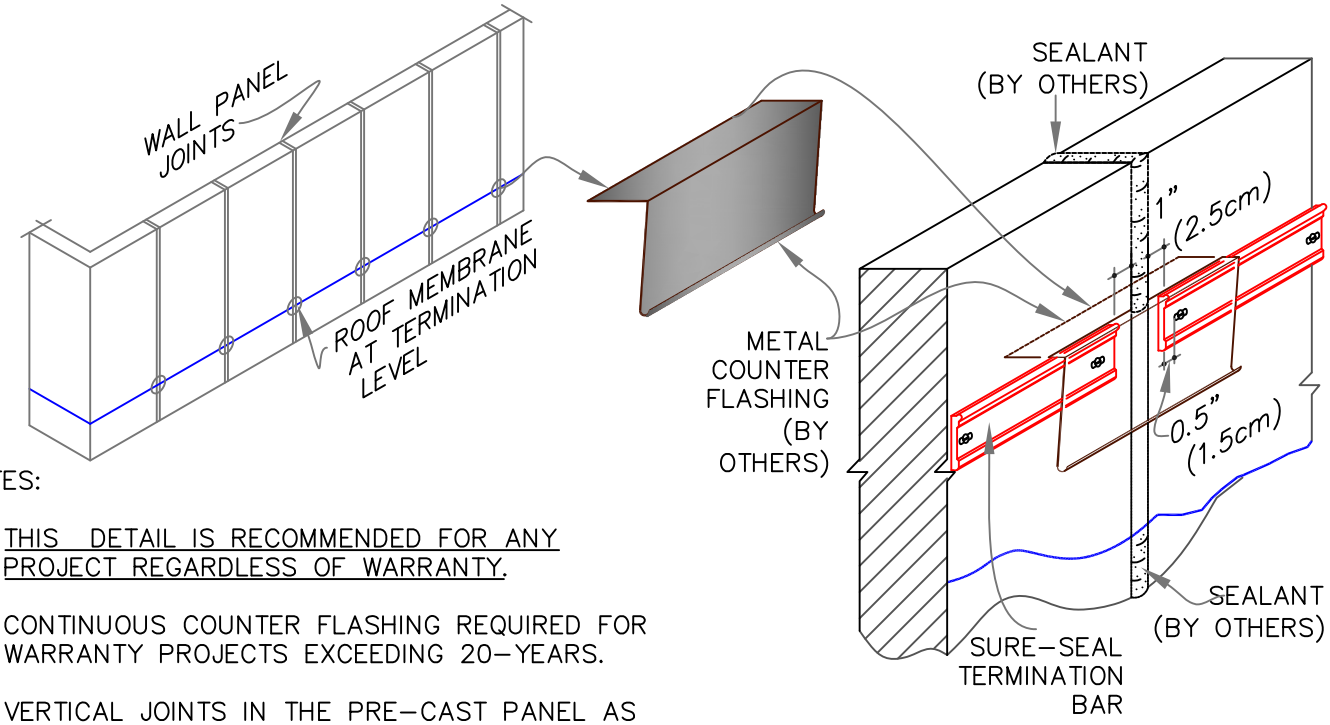
MEMBRANE TERMINATIONS (PAGE 1 OF 3)

WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB-9

FLEECEBACK ADHERED

9D MECHANICAL TERMINATION AT VERTICAL JOINTS



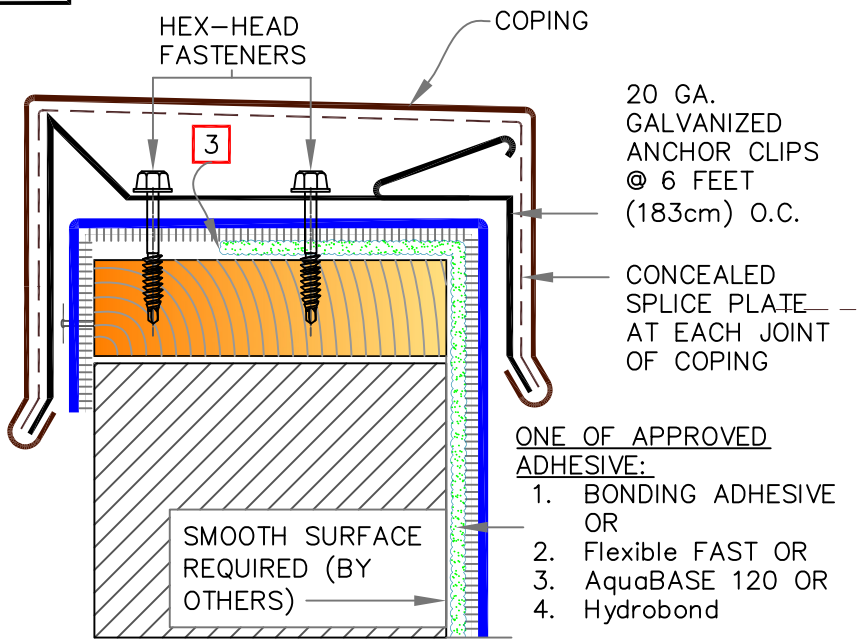
NOTES:

1. THIS DETAIL IS RECOMMENDED FOR ANY PROJECT REGARDLESS OF WARRANTY.
2. CONTINUOUS COUNTER FLASHING REQUIRED FOR WARRANTY PROJECTS EXCEEDING 20-YEARS.
3. VERTICAL JOINTS IN THE PRE-CAST PANEL AS WELL AS ALL GAPS AT THE JUNCTION OF THE TILT-UP PANEL AND ROOF DECK MUST BE FULLY SEALED TO PREVENT AIR INFILTRATION.
4. APPLY ON HARD SMOOTH SURFACE ONLY.

9E SecurEdge 200 & 300 COPINGS

NOTES:

1. MEMBRANE MUST BE EXTENDED AT CORNERS TO PROVIDE COMPLETE COVERAGE OF THE TOP WALL SURFACE. SEE 3D DETAIL 9F ON PAGE 3 OF 3.
2. REFER TO SecurEdge COPING INSTALLATION INSTRUCTION MANUAL FOR STEP-BY-STEP INSTRUCTION PROCEDURES.
3. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & TEMPORARILY SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

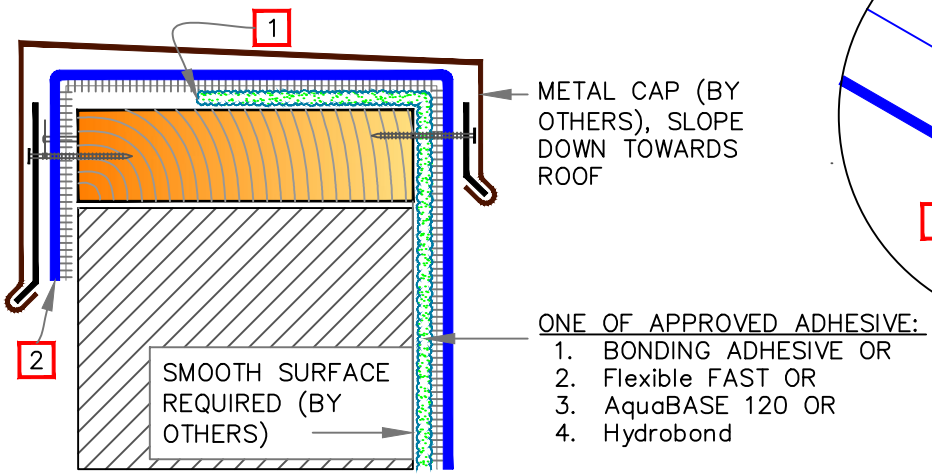
MEMBRANE TERMINATIONS (PAGE 2 OF 3)

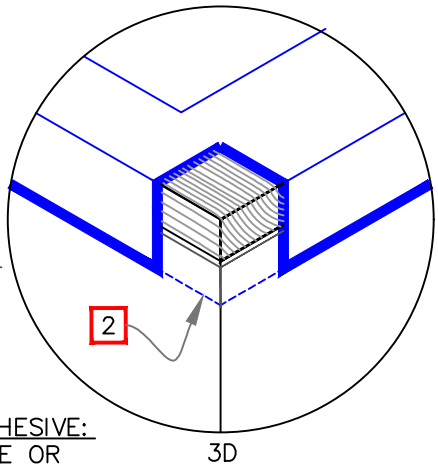
WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB-9

FLEECEBACK ADHERED

9F | SHEET METAL COPING (BY OTHERS)



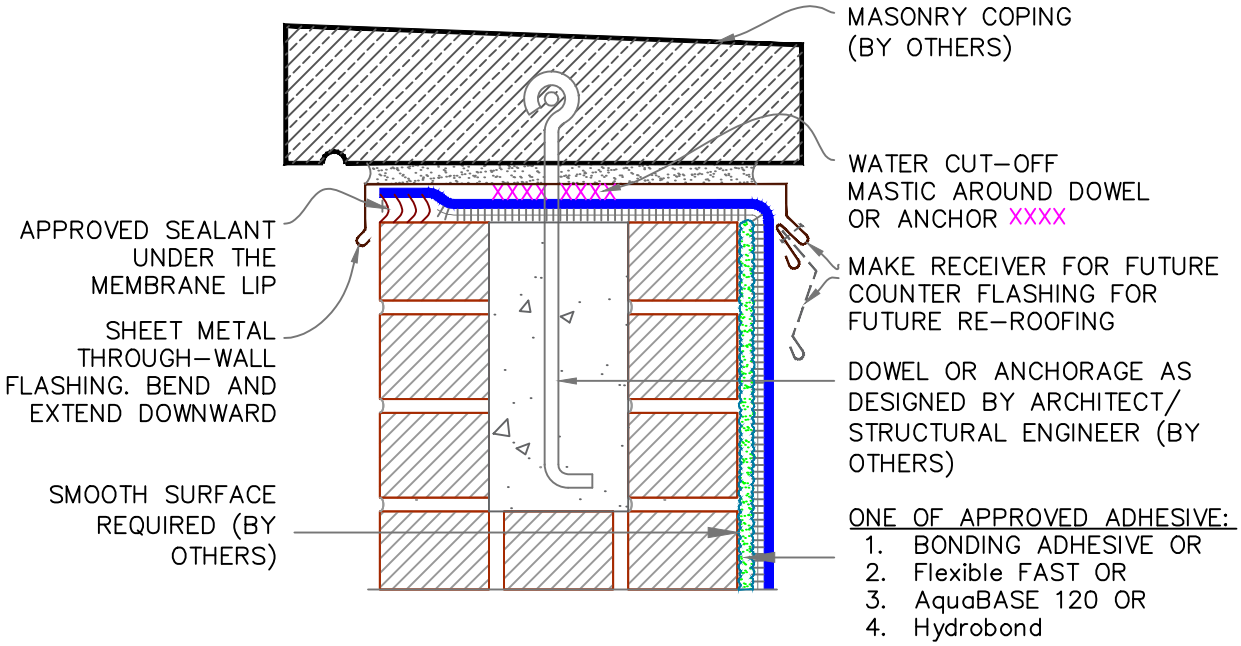


NOTES:

1. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.

2. EXTEND THE MEMBRANE BELOW THE JOINT. AT CORNERS, MEMBRANE MUST BE EXTENDED TO PROVIDE COMPLETE COVERAGE OF WALL SURFACE.

9G | MASONRY COPINGS (BY OTHERS)



XXX WATER CUT-OFF MASTIC- MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE APPROVED ADHESIVE APPROVED SUBSTRATE 0 SEE NOTE(S)	MEMBRANE TERMINATIONS (PAGE 3 OF 3) MAXIMUM WARRANTY: 30 YEARS	DETAIL NO. FB-9 FLEECEBACK ADHERED

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Carlisle SynTec Systems, a division of Carlisle Construction Materials LLC.
1285 Ritner Highway
Carlisle, PA 17013

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.
This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Carlisle Sure-Weld Single Ply TPO Roof Systems over Lightweight Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews NOA# 23-0410.08 and consists of pages 1 through 23.
The submitted documentation was reviewed by Alex Tigera.

08/15/24

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	TPO
Deck Type:	Lightweight Concrete Decks
Maximum Design Pressure	-492.5 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Sure-Weld FleeceBACK	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 100, 115 and 135 mils.
Sure-Weld AFX	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 120, 135 and 155-mils.
Sure-Weld	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thicknesses are 45 and 60-mils.
Sure-Weld EXTRA	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thickness is 80-mils.
Sure-Weld HS	various	TAS 131	Reinforced white or colored FR TPO membrane. Available sheet thicknesses are 45, 60 and 80-mils.
Sure-Weld SAT	Various	TAS 131	Self-Adhered Reinforced TPO Membrane. Available sheet thickness is 60-mil.
FAST 100 LV Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive
FAST Dual Cartridge Adhesive	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
FAST Bag in a Box Adhesive	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Flexible FAST Dual Cartridge	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Bag In A Box	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Sure-Weld Bonding Adhesive	5-gal. pail	TAS 110	Solvent-based bonding adhesive.
Aqua Base 120 Bonding Adhesive	5-gal. pail	TAS 110	Water-based bonding adhesive
Cold Applied Adhesive	5-gal. pail	TAS 110	Asphalt-modified Polyether adhesive

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Polyisocyanurate HP-H	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield HD Composite	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
H-Shield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-Shield CG	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-shield HD Composite CG	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Hunter Panels, a div of Carlisle construction Materials, LLC.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	HPX Fastener	Truss head, self-drilling, drill point, high thread fastener for use into steel and wood decks	#15 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
2.	InsulFast Fastener	Carbon steel fastener for use into steel and wood decks	#12 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
3.	Piranha Plate	Steel stress plate used with HPX Fastener for attachment of membrane	2-3/8 inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
4.	Insulation Fastening Plate	Galvalume plated steel stress plate with reinforcing ribs	3-inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
Atlantic & Caribbean Roof Consulting, LLC.	11-034	TAS 114 Appendix D	06/28/11
	11-035	TAS 114 Appendix D	06/28/11
	11-037	TAS 114 Appendix D	06/29/11
	15-002	TAS 114 Appendix D	03/30/15
	15-008	TAS 114 Appendix D	04/02/15
	15-009	TAS 114 Appendix D	04/06/15
	15-041	TAS 114 Appendix D	12/30/15
	15-043	TAS 114 Appendix D	01/04/16
Architectural Testing Inc.	ATI-37490.01	Membrane Brittleness Testing	7/7/00
Factory Mutual Research Corp.	3022174	Wind Uplift and Fire Classification	09/25/06
	3Z9A1.AM	Wind Uplift and Fire Classification	10/15/97
	1B7A5.AM	Wind Uplift and Fire Classification	02/23/98
	Approval Guide Excerpt	Wind Uplift and Fire Classifications Listings	5/00
	3011220	Class 4470	08/16/01
	3012879	Class 4470	04/04/03
Celotex Corporation Testing Services	520257	Membrane Physical Property Testing	4/19/00
SGS U.S. Testing Company Inc.	131248-R2	Membrane Ozone Resistance Testing	1/6/00
Trinity ERD	C46470.07.14-1A	TAS 131	07/16/14
	C46470.07.14-1B	TAS 131	07/16/14
	C46470.07.14-2A	TAS 131	07/30/14
	C46470.07.14-4-R1	TAS 131	07/21/14
	4r-CRL-20-SSTHP-.02.D	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.C	TAS 131	04/27/21
	4-CRL-18-002.04.18-2A	TAS 131	04/30/18
	4r-CRL-20-SSTHP-02.B.R2	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.A	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.03.A	TAS 131	04/27/21

DECK STRESS ANALYSIS CALCULATIONS/REPORTS

Engineer/Agency	Identifier	Assemblies:	Date
Randall Fowler P.E.	Letter	E(1), E(2)	04/30/15

APPROVED ASSEMBLIES

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(1): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied to the substrate only at a rate of 120 ft^2/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld AFX membrane adhered to the insulation Cold Applied Adhesive. The adhesive is applied to the substrate only at a rate of 67 ft²/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -340 psf (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(2): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel.
System Type E(1):	Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type E(2): Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete, Non-insulated, over Steel Deck

Deck Description: Celcore Cellular Lightweight Concrete, minimum 300 psi., over steel or structural concrete.

System Type F(1): Membrane adhered to lightweight concrete deck

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 18-22 ga. 33 ksi steel deck

Membrane: Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf. (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Celcore Lightweight Insulating Concrete, minimum 300 psi. over structural concrete.

System Type F(2): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -232.5 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-135 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-82.5 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi.over structural concrete.

System Type F(3): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-67.5 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-90 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(4): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(5): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(6): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(7): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(8): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(9): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(10): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.
System Type F(11):	Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck:	Minimum 2500 psi structural concrete.
Lightweight Concrete:	The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.
Membrane:	Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Maximum Design Pressure:	-217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over structural concrete.

System Type F(12): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 3000 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 250 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld SAT (Self-Adhered Technology) membrane fully adhered to the lightweight concrete. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -282.5 psf.; (See General Limitation #9)

LIGHTWEIGHT INSULATING CONCRETE SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.

3. For Systems where specific lightweight insulating concrete si referenced consult current lightweight insulating concrete NOA for specific deck construction and limitations. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
11. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE

Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

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INSTRUCTION PAGE

COMPLETE THE NECESSARY SECTIONS OF THE UNIFORM ROOFING PERMIT APPLICATION FORM AND ATTACH THE REQUIRED DOCUMENTS BELOW:

Roof System	Required Sections of the Permit Application Form	Attachments Required See List Below
Low Slope Application	A,B,C	1,2,3,4,5,6,7
Asphaltic Shingles	A,B,D	1,2,4,5,6,7
Concrete or Clay Tile	A,B,D,E	1,2,3,4,5,6,7
Metal Roofs	A,B,D	1,2,3,4,5,6,7
Wood Shingles and Shakes	A,B,D	1,2,4,5,6,7
Other	As Applicable	1,2,3,4,5,6,7

ATTACHMENTS REQUIRED:

1.	Fire Directory Listing Page
2.	From Product Approval: Front Page Specific System Description Specific System Limitations General Limitations Applicable Detail Drawings
3.	Design calculations per Chapter 16, or if applicable, RAS 127 or RAS 128
4.	Other Component Product Approval
5.	Municipal Permit Application
6.	Owner's Notification for Roofing Considerations (Reroofing Only)
7.	Any Required Roof Testing / Calculation Documentation

Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

Section A (General Information)

Master Permit Number: _____ Process Number: _____

Contractor's Name: Nations Roof Residential, LLC - Ian Alan Brenner

Job Address: 14001 NW 82 Ave Miami Lakes, FL 33016

ROOF CATEGORY

☑ Low Slope ☐ Mechanically Fastened Tile ☐ Mortar / Adhesive Set Tile

☐ Asphaltic Shingles ☐ Metal Panel/ Shingles ☐ Wood Shingles / Shakes

ROOF TYPE

☑ New Roof ☐ Repair ☐ Maintenance ☐ Reroofing ☐ Recovering

ROOF SYSTEM INFORMATION

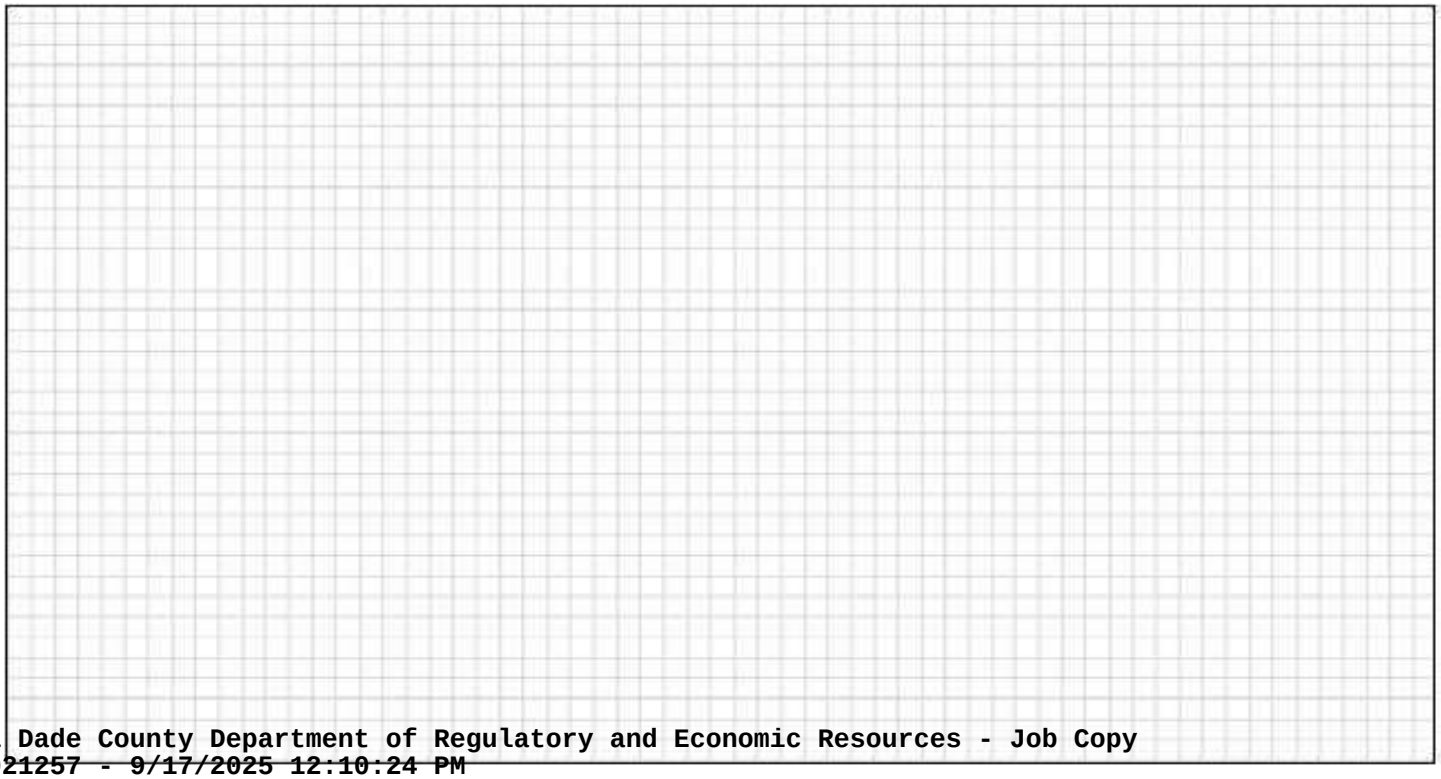
Low Slope Roof Area (ft^2)	Steep Sloped Roof Area (ft^2)	Total (ft^2)
	0	

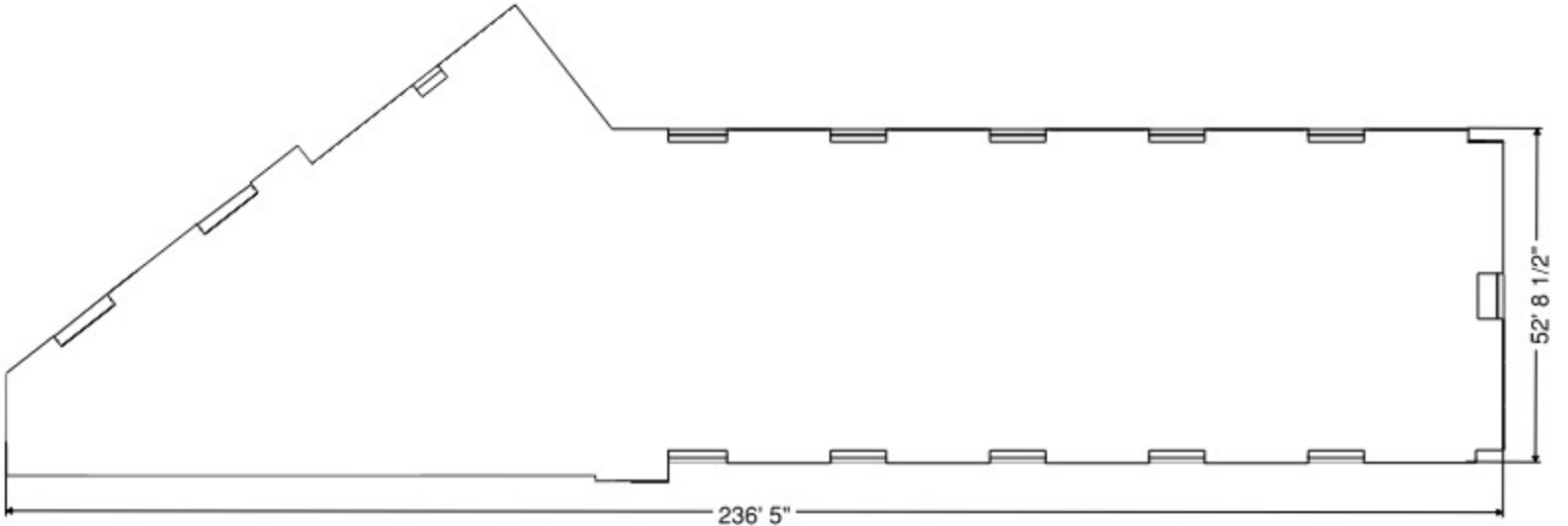
Are there gas vents on the roof? ○ Yes ○ No If Yes what type? ○ Natural ○ LPX

Is there an existing roof top Solar System? ○ Yes ◉ No If yes will it be reinstalled? ○ Yes ◉ No

Section B (Roof Plan)

Sketch Roof Plan: Illustrate all levels and sections, roof drains, scuppers, overflow scuppers and overflow drains. Include dimensions of sections and levels, clearly identify dimensions of elevated pressure zones and location of parapets.





Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

Section C (Low Sloped Roof Systems)

Fill in Specific Roof Assembly Components and Identify manufacturer
(If a component is not used, identify as "NA")

System Manufacturer: Carlisle

Product Approval # NOA 24-0502.05

Design Wind Pressures, from RAS 128 or Calculations:

Zone 1': -56.0 Zone 1: -45.2 Zone 2: -67.8

Zone 3: -92

Max. Design Pressure, from the specific product approval system: -217.5

Deck Type: LWIC over Concret

Gauge / Thickness: N/A

Slope: .25/12 pitch

Anchor/ Base Sheet & No. of Ply(s): N/A

Anchor/ Base Sheet Fastener/ Bonding Material:
N/A

Insulation Base Layer: N/A

Base Insulation Size and Thickness: N/A

Base Insulation Fastener/ Bonding Material:
N/A

Top Insulation Layer: N/A

Top Insulation Size and Thickness: N/A

Top Insulation Fastener/Bonding Material:
N/A

Base Sheet(s) & No. of Ply(s): N/A

Base Sheet Fastener/ Bonding Material:
N/A

Ply Sheet(s) and No. of Ply(s): N/A

Ply Sheet Fastener/ Bonding Material:
N/A

Top Ply: Fleeceback 135mil

Top Ply Fastener/ Bonding Material:
Low Rise Adhesive

Surfacing:
Ribbons 4" OC

Fastener Spacing for Anchor/Base Sheet Attachment:

Zone 1' N/A " oc @ Laps, # Rows _____ @ _____ " oc

Zone 1 N/A " oc @ Laps, # Rows _____ @_____ " oc

Zone 2 N/A " oc @ Laps # Rows _____ @ _____ " oc

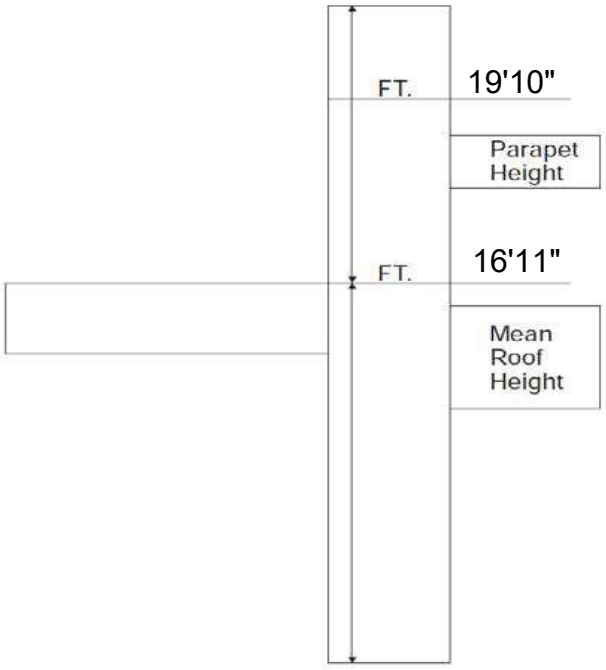
Zone 3 N/A " oc @ Laps, # Rows _____ @ _____" oc

Number of Fasteners Per Insulation Board

Zone 1': N/A Zone1: N/A Zone 2: N/A Zone 3: N/A

Illustrated Components Noted and Details as Applicable:
Woodblocking, Gutter, Edge Termination, Stripping, Flashing, Continuous Cleat, Cant Strip, Base Flashing, Counterflashing, Coping, Etc.

Indicate: Mean Roof Height, Parapet Height, Height Base Flashing, Component Material, Material Thickness, Fastener Type, Fastener Spacing or Submit Manufactures Details that Comply with RAS 111 and Chapter 16.



Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

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Section D (Steep Sloped Roof System)

Roof System Manufacturer: _____

Product Control Number: _____

Minimum Design Wind Pressures, From Applicable RAS 127 Table or Calculation:

Zone1: _____ Zone 2: _____ Zone3: _____

Slope Range: ◯ ≥ 2:12 to ≤ 4:12 ◯ > 4:12 to ≤ 6:12 ◯ > 6:12 to ≤ 12:12

Roof Shape: ◯ All Hip Roof ◯ Gable Roof or Partial Gable/Hip Roof

Deck Type:

Underlayment Type:

Roof Slope: _____: 12

Insulation:

Fire Barrier:

Ridge Ventilation? _____

Fastener Type & Spacing:

Cap Sheet Type:

Mean Roof Height: _____

Cap Sheet Attachment:

Roof Covering:

Drip Edge Type & Size:

Florida Building Code 8th Edition (2023)
High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County
Section E (Tile Calculations)

For Moment based tile systems, choose Method 1. Compare the values for M_r with the values from M_f. If the M_f values are greater than or equal to the M_r values for each area of the roof, then the tile attachment method is acceptable.

Method 1* " Moment Based Tile Calculations per RAS 127"
Enter positive uplift pressures when using this table

(Zone 1: _____ x λ _____ = _____) – Mg: _____ = Mr_1 _____ Product Approval Mf: _____

(Zone 2: _____ x λ _____ = _____) – Mg: _____ = Mr_{2e} _____ Product Approval Mf: _____

(Zone 3: _____ x λ _____ = _____) – Mg: _____ = Mr_{2n} _____ Product Approval Mf: _____

Tile attachment method:

Alternate Tile attachment method :

Method 2 "Simplified Tile Calculations" only applicable in *Broward County.

For Uplift Based tile systems use Method 3. Compare the values for F' with the values for Fr. If the F' values are greater than or equal to the Fr values for each area of the roof, then the tile attachment method is acceptable.

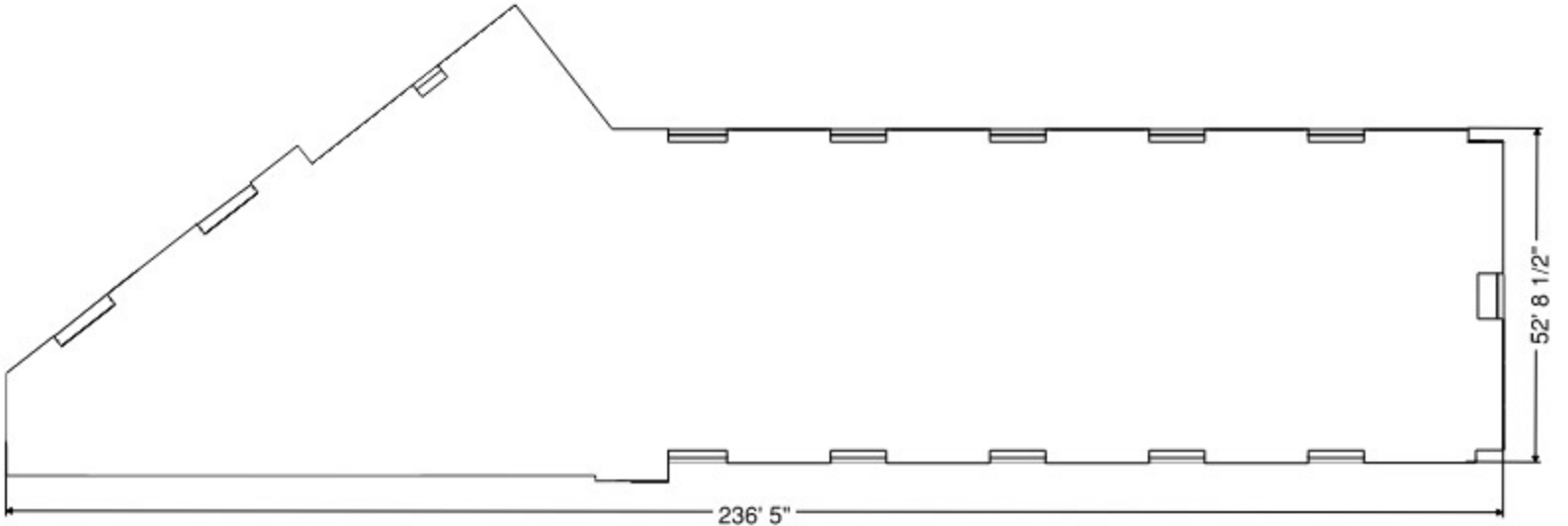
Method 3* "Uplift Based Tile Calculations per RAS 127"

(Zone 1: _____ x L = _____ x W = _____) – (w) x cos θ _____) = Fr_1 _____ Product Approval F': _____

(Zone 2: _____ x L = _____ x W = _____) – (w) x cos θ _____) = Fr_2 _____ Product Approval F': _____

(Zone 3: _____ x L = _____ x W = _____) – (w) x cos θ _____) = Fr_3 _____ Product Approval F': _____

Where to obtain information		
Description	**Symbol**	**Where to Find**
Design Pressure	Zones 1, 2, & 3	From the applicable Table in RAS- 127 or by an engineering analysis prepared by a PE based upon ASCE 7
Mean Roof Height	H	Job Site
Roof Slope	θ	Job Site
Aerodynamic Multiplier	λ	Product Approval / Notice of Acceptance
Restoring Moment due to Gravity	M_g	Product Approval / Notice of Acceptance
Attachment Resistance	M_f	Product Approval / Notice of Acceptance
Required Moment Resistance	M_r	Calculated
Minimum Attachment Resistance	F'	Product Approval / Notice of Acceptance
Required Uplift Resistance	F_r	Calculated
Average Tile Weight	w	Product Approval / Notice of Acceptance
Tile Dimensions	L=Length W= Width	Product Approval / Notice of Acceptance
All calculations must be submitted to the Building Official at the time of permit application.		



MAY

1175 Peachtree Street NE
Colony Square Building 100
Suite 1800
Atlanta, GA 30361
404 614 0700
www.mayarchitecture.com

Submittal Review

May Architecture Response:

-Color: White

-Thickness: 135 mil (including fleece backing)

-Warranty: Submit the remaining required roof system warranty documentation per Specification 07 54 23, Article 1.12, for record. The warranty must include:

1. A minimum 30-year warranty period, as specified

2. Coverage for wind speed resistance per project requirements

3. Full coverage of labor, materials, and workmanship provided by the installer

Approved as noted

Submit other outstanding warranty documentations for record.

Reviewed by: Rianna Wah

Date: 07/01/2025

May Architecture

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for quantities; dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with the Contract Documents.

General Review Comments

Note: The following list may not comprise all of the submittal review comments. At times a graphic marking on the submittal is required to convey a comment. Therefore, refer also to the submittal itself for possible additional comments. The above comments plus any on the submittal itself comprise the comments related to this review.

Gerrits Construction

8177 Glades Rd, Suite 206
Boca Raton, FL 33481-0813
Telephone (561) 477-3553
Fax (561) 477-0876

Submittal cover page

To: May Architecture & Interior	**Project No:**
ATTN: Joseph Okelarin & Todd Combs	**Date:** 6.18.2025
CC: Bill Alexander & Sarah Wagner	**Re:**

WE ARE SENDING THE FOLLOWING INFORMATION:

☒ ATTACHED EMAIL ☐ BY MAIL ☐ BY EXPRESS ☐ BY HAND ☒ SHOP DRAWINGS ☐ PRINTS ☐ PLANS
☐ SAMPLES ☐ SPECIFICATIONS ☐ COPY OF LETTER ☐ CHANGE ORDER ☒ MANUF. DATA

COPIES	DATE	#	DESCRIPTION
1	6/18/25	2413-109-1.2-075423	Revised TPO Thermoplastic Roofing

REMARKS:

☒ For approval ☒ Urgent ☐ For your use ☐ Reply ASAP ☐ Please comment

Date Reviewed: 6.18.2025

Submittal No.: 2413-109-1.2-075423

Review of this shop drawing is limited to general design requirements of the contract documents and the general compliance therewith. This review does not relieve the subcontractor / supplier / manufacturer ("Offeror") of the responsibility for compliance with the contract documents, subcontract agreement / purchase order, and applicable codes. Verification of all actual dimensions, field conditions, and coordination with other trades is the sole responsibility of the offeror(s).

(✓) Acceptance Recommended
( ) Acceptance Recommended as Noted
( ) Other – Please Advise if Acceptable
( ) Revise and Resubmit
( ) Rejected

By: JP

Your Assurance of Quality

Roof Hatches

Every BILCO product is designed to operate to the customer's satisfaction and to provide years of trouble-free service. Should a part fail to function in normal use within a period of five (5) years from the date of purchase, a new part will be furnished at no charge. Electric motors, special finishes, and other special equipment (if applicable) shall be warranted separately by the manufacturers of those products.

an AmesburyTruth company

WARRANTY REGISTRATION

UL Product iQ®

Note: We are enhancing our systems and you may notice duplicate entries/missing/outdated data. During this interim period, please contact our Customer Service at https://www.ul.com/about/locations.

Roofing Systems

COMPANY

Carlisle SynTec Systems, a division of Carlisle Construction Materials, LLC
1295 RITNER HWY
CARLISLE, PA 17013-0925 United States

R8103

SINGLE PLY MEMBRANE SYSTEMS

Any roof covering system listed for use over a combustible roof deck can be installed over a non-combustible roof deck and achieve the same classification.

In the fully adhered and mechanically fastened systems described below, the "Sure-Seal EPDM" membrane coated with "EM-8 Hypalon" coating at 2/3-gal/100-ft.^{2} and dry silica sand (35-lbs/100-ft.^{2}) may replace the "Sure-Seal FR EPDM" or "Sure-Seal FR-PLUS EPDM" membrane.

When a classification does not require a Hypalon or Hypalon and sand coating, the classification of any EPDM roof covering system is retained when surfaced with 1 or 2 coats of "EM-8 Hypalon" coating using of coverage rate of 2/3-gal/100-ft.^{2}/coat limited to maximum inline of 3-1/2:12.

Unless otherwise indicated, when referring to gypsum board in the following classifications, the following will be referenced: Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard", 1/4 in. thick minimum, United States Gypsum Co. "SECUROCK Glass-Mat Roof Board" (Type SGMRX) or "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G), 1/4 in. thick minimum, Regular gypsum board (not Classified) laid with staggered joints (minimum 6-in. offset) measuring 0.463-in. thick minimum and weighing 184-lbs/100-ft.^{2} minimum or Georgia Pacific "Sound Deadening" Board, measuring 0.208-in. thick minimum and weighing 109-lbs/100-ft.^{2} minimum. 1/4 in. (minimum) United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 3:12 when used as a thermal barrier over a combustible roof deck in a system with any UL Classified insulation except polystyrene. Minimum 1/2 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 1:12 when used as a thermal barrier over a combustible roof deck in a system without insulation or with any UL Classified polystyrene insulation.

Minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard", minimum 1/4 in. thick Owens Corning "Strataguard", minimum 1/4 in. thick United States Gypsum Co. "SECUROCK Glass-Mat Roof Board" (Type SGMRX) or "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) or regular gypsum board may replace "HP Recovery Board" in any existing noncombustible roof deck Classification. When this is done, the resulting roof covering system is acceptable for use over combustible (15/32 in. minimum) roof decks. The joints in the gypsum board are offset 6-in. with the joints in the roof deck. 1/4 in. (minimum) United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 3:12 when used over a combustible roof deck in a system with any UL Classified insulation except polystyrene. Minimum 1/2 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 1:12 when used over a combustible roof deck in a system without insulation or with any UL Classified polystyrene insulation.

Minimum 1/2 in. thick gypsum board, minimum 1/4 in. thick Owens Corning "Strataguard", minimum 1/4 in. thick United States Gypsum Co. "SECUROCK Glass-Mat Roof Board" (Type SGMRX) or "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) or minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" may be used in any existing noncombustible roof deck Classification. When this is done, the resulting roof covering is acceptable for use over combustible (15/32-in. minimum) roof decks. The joints in the gypsum board and overlayment board are offset a minimum of 6-in. with the joints in the roof deck. Minimum 1/4 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 3:12 when used as a thermal barrier over a combustible roof deck in a system with any UL Classified insulation except polystyrene. Minimum 1/2 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 1:12 when used as a thermal barrier over a combustible roof deck in a system without insulation or with any UL Classified polystyrene insulation.

Unless otherwise indicated, Johns Manville "ENRGY 2 Plus" (composite) insulation may replace the "HP Recovery Board" over polyisocyanurate insulation in any of the systems mentioned below.

Unless otherwise indicated, any UL Classified wood fiber board, any oriented strand board (OSB), Carlisle Syntec Systems "StormBase", "StormBase NH", Carlisle Syntec Systems ENBase or Hunter Panels H-Shield-NB, "H-Shield NB NH" may replace "HP Recovery Board" in any of the systems mentioned below.

Unless otherwise indicated, on non-combustible decks, Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", "SecurShield HD Composite", "SecurShield HD Composite NH", "StormBase", "StormBase NH", or Hunter Panels "H-Shield HD", "H-Shield HD NH","H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite", "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", "H-Shield-NB" or "H-Shield-NB NH" may replace, or be used in addition to, any Carlisle Syntec Systems product or any UL Classified wood fiberboard, in any UL Classified insulated roof covering system assembly and retain the classification of that assembly, though the maximum slope cannot exceed 1/2:12 if Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", or "SecurShield HD Composite", "SecurShield HD Composite NH" or Hunter Panels "H-Shield HD", "H-Shield HD NH" "H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite" or "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", is used directly below TPO membrane. Unless otherwise indicated, on combustible roof decks, Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus","SecurShield HD Plus NH", "SecurShield HD Composite", "SecurShield HD Composite NH", "StormBase", "StormBase NH",, or Hunter Panels "H-Shield HD", "H-Shield HD NH","H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite", "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", "H-Shield-NB" or "H-Shield-NB NH" may be used in addition to any Carlisle Syntec Systems polyisocyanurate product or may replace, or be used in addition to, any UL Classified wood fiber board, in any insulated UL Classified roof covering system assembly and retain the classification of that assembly, though the maximum incline cannot exceed 1/2:12 if Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", or "SecurShield HD Composite", "SecurShield HD Composite NH" or Hunter Panels "H-Shield HD","H-Shield HD NH" "H-Shield HD90","H-Shield HD90 NH", "H-Shield HD Composite" or "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", is used directly below TPO membrane.

Minimum 1/2 in. thick Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", "SecurShield HD Composite", "SecurShield HD Composite NH" or Hunter Panels "H-Shield HD", "H-Shield HD NH" , "H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite" or "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", may be used over any UL Classified polystyrene on non-combustible roof decks. Maximum incline shall be in accordance with the Classification established for the insulation/membrane roof covering system, but cannot exceed 2:12.

Uniform or tapered insulation may be used in the following assemblies provided they do not exceed the indicated incline or thickness and carry a UL label.

Unless otherwise indicated, the term "Referenced Insulations" will include the following:

Carlisle Syntec Systems:

"Polyiso HP"	"SecurShield-N"	"SecurShield HD Plus NH"
"Polyiso HP-H"	"Tapered SecurShield-N"	"SecurShield HD Composite"
"InsulBase"	"SecurShield"	"SecurShield HD Composite NH"
"InsulBase NH"	"SecurShield NH"	"Tapered Polyiso HP-HCG"

"Polyiso HP-W"	"SecurShield-W"	"Tapered SecurShield"
"Polyiso HP-WLC"	"SecurShield HD"	"Tapered SecurShield NH"
"Polyiso HP-HCG"	"SecurShield HD NH"	"Polyiso HP-HDD"
"Tapered Polyiso"	"SecurShield HD Plus"	

Atlas Roofing Corp.:

"ACFoam II"	"ACFoam III"

Hunter Panels:

"H-Shield"	"H-Shield-CG NH",	"H-Shield HD90 NH"
"H-Shield NH"	"H-Shield CGw"	"H-Shield HD Composite"
"H-Shield ca"	"H-Shield HD",	"H-Shield HD Composite CG"
"H-Shield W"	"H-Shield HD NH"	"H-Shield HD Composite CG NH"
"H-Shield-CG"	"H-Shield HD90"	

Johns Manville:

"ENRGY- 2",	"ENRGY-3"

Firestone Building Products:

"ISO 95+GL"	"ISO 95+GW"	"ISO 95+HF"

Rmax Operating LLC.:

"Multi-Max" (EPDM only), any thickness.	

Any UL Classified Expanded (EPS) or Extruded (XPS), maximum density 1.25 pcf, any thickness, may be used below the referenced Carlisle Syntec Systems or Hunter Panels polyisocyanurate insulations on non-combustible roof decks provided a minimum 1- in. thick layer of Carlisle Syntec Systems or Hunter Panels polyisocyanurate insulation is used. Maximum incline shall be in accordance with Classification established for the polyisocyanurate insulation/membrane roof covering system, but cannot exceed 1:12.

"Sure-Tough" reinforced EPDM membrane is classified in 45 to 75 mil thicknesses. "Sure-Tough FR" reinforced EPDM membrane is classified in 45 to 60 mil thicknesses.

"Weather Bond Pro(TM) 101 Rubber Roofing Membrane" may be used in lieu of "Sure-Seal EPDM" in any applicable Classification.

"Weather Bond Pro(TM) 310 Multipurpose Lap Sealant" may be used in lieu of "Sure-Seal® Lap Sealant" and "Weather Bond Pro(TM) 121 Rubber Roofing Adhesive" may be used in lieu of "Sure-Seal® 90-8-30A Bonding Adhesive" in any applicable Classification.

Unless otherwise indicated in the systems described below, any adhesive splice may be overlaid with pressure-sensitive flashing.

"Sure-Seal FR EPDM", 90 mil is an acceptable alternate to the 45 and 60 mil thick "Sure Seal FR EPDM" in any applicable Classification.

"Polyiso HP-H", "InsulBase", and "InsulBase NH" may be used in any UL Classified insulated roof covering system assembly that incorporates the use of any UL Classified polyisocyanurate insulation.

United Solar Ovonic LLC's Field-Assembled Photovoltaic (Solar) Module Systems, "PVL-29, -31, -58, -60, -62, -64, -68, -87, -93, -116, -120, -124, -128, -136 and -144", may be installed over any UL Classified Carlisle Syntec Systems roof covering membrane assembly. The Module system is either adhered directly to the roof covering membrane in the field or adhered to an intermediate roof covering material layer in the factory (using an adhesive below or a film over top) and then attached to the roof covering membrane in the field using heat welding, adhesive around the perimeter or fasteners. The Classification applies to combustible and non-combustible roof decks. The maximum incline and Classification (Class A, B or C) shall be in accordance with the Classification established for the membrane roof covering assembly, however the incline cannot exceed 1-1/2:12 for EPDM and PVC membranes and 1:12 for TPO membranes.

In the roof covering systems described below, the "Alutrix FR" or "VapAir Seal™ MD" vapor barrier may be used below the insulation. The vapor barrier may be applied to either the thermal barrier or directly to the deck.

A vapor barrier (non-UL Classified) may be used below the insulation in any of the following systems without affecting the Classification.

The "APEEL Protective Film" applied to any UL Classified Carlisle Syntec Systems TPO or PVC membrane is removed after the completion of installation of the roof covering system. The Classification established for the UL Classified Carlisle Syntec Systems TPO or PVC membrane roof covering system would be maintained.

Any Carlisle Syntec Systems TPO or PVC finished product may also include the statement "with APEEL Protective Film" as part of the trade name. The "APEEL Protective Film" is removed after the completion of the installation of the roof covering system. The Certification established for the UL Certified Carlisle Syntec Systems TPO or PVC membrane roofing systems would be maintained.

Use of the Carlisle Syntec Pressure Equalizing Vent System designated “VacuSeal Vent” is permissible within any Carlisle Syntec Systems roof covering system assembly without altering the indicated fire Classification.

Detec Systems LLC, "TruGround™ Conductive Primer", applied at 1/3 gal/100 ft^2 may be used within any Carlisle Syntec Systems roof covering system assembly without altering the indicated fire Classification.

Unless otherwise indicated "X-Tenda Coat XTRA Silicone Gray Roof Coating", "X-Tenda Coat XTRA Silicone Light Gray Roof Coating", "X-Tenda Coat XTRA Silicone Dark Gray Roof Coating", "X-Tenda Coat XTRA Silicone Almond Roof Coating", "X-Tenda Coat XTRA Silicone Tan Roof Coating", "X-Tenda Coat XTRA Silicone Charcoal Roof Coating", "X-Tenda Coat XTRA Silicone Terra Cotta Roof Coating", "X-Tenda Coat XTRA Silicone Bri` Yellow Roof Coating", "X-Tenda Coat XTRA Silicone Brown Roof Coating", "X-Tenda Coat XTRA Silicone Custom Color Roof Coating" are acceptable alternates to "X-Tenda Coat XTRA Silicone White Roof Coating" in all applicable Classifications.

For Combustible Roof Decks - Class A:

1. A minimum 3-in. thick layer or a minimum two layers of 1.5 in. thick of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH" is placed directly over a combustible deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof cover covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 3-in. minimum total thickness of Carlisle Syntec Systems "SecurShield" "SecurShield HD Composite", "SecurShield NH", "SecurShield HD Composite NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

2. A minimum 2.5 in. thick layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH" is placed over a minimum 2.5 in. layer of any UL Classified insulation (except expanded or extruded polystyrene) over a combustible roof deck. The insulation is covered with any UL Classified roof

covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

3. A minimum 1.9 in. thick layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH" is placed over 1 layer of Carlisle Syntec Systems "FR Base Sheet 1S" or GAF "VersaShield FB-1S" over a combustible roof deck. The insulation is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9 in. minimum total thickness of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

4. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" over a minimum 2.5 in. thick layer of any Carlisle Syntec Systems or Hunter Panels Classified polyisocyanurate insulation is placed directly over a combustible deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 3- in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

5. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" over a minimum 1.4 in. thick layer of any Carlisle Syntec Systems or Hunter Panels Classified polyisocyanurate insulation is placed over a minimum 1 layer of Carlisle Syntec Systems "FR Base Sheet 1S" or GAF "VersaShield FB-1S" over a combustible roof deck. The insulation is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

6. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1- in. minimum thickness of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the

membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

7. A minimum 1/2 in. thick layer of "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or Carlisle Syntec Systems "SecurShield HD RL" over a minimum 4-in. thick layer of any UL Classified EPS insulation is placed directly over a combustible deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

8. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH" over a minimum 3-1/2 in. thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roofing assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roofing assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

9. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD FR" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1/2 in. minimum thickness of "SecurShield HD FR". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roofing assembly, however the incline cannot exceed 1/2:12.

10. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD FR" over a minimum 3-1/2 in. thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

11. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield" or "SecurShield NH" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1- in. minimum thickness of Carlisle Syntec Systems "SecurShield" or "SecurShield NH". All layers may be loosely laid or attached with fasteners and

plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 12- in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

12. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield" or "SecurShield NH" over a minimum 3-1/2 in. thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 12-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

13. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" is placed directly over a combustible deck and is covered with any UL Classified roofing membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1/2 in. minimum thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 12 in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roofing assembly as published on UL's On-Line Certification Directory for the product category Roofing Systems (TGFU); however the incline cannot exceed 1:12.

For Combustible Roof Decks - Class B:

1. A minimum 1.9 in. thick layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH", or "SecurShield HD Composite NH" or a minimum 2-in. thick layer of Carlisle Syntec Systems "Polyiso HP-WLC" or Atlas Roofing Corp. "AC Foam III" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class B roof covering assembly to achieve a Class B fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9-in. minimum thickness layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH", "SecurShield HD Composite NH" or 2-in. minimum thickness layer of Carlisle Syntec Systems "Polyiso HP-WLC" or Atlas Roofing Corp. "AC Foam III". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

2. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" over a minimum 1.4- in. thick layer of any Carlisle Syntec Systems or Hunter Panels Classified polyisocyanurate insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A or B roof covering assembly to achieve a Class B fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9- in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6- in. from the roof deck joints or from the

insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

3. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A or B roof covering assembly to achieve a Class B fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the "SecurShield CD" or "SecurShield CD NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All layers joints must be staggered a minimum of 6- in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's On-Line Certification Directory for the product category Roofing Systems (TGFU).

4. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD FR" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A or B roof covering assembly to achieve a Class B fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the "SecurShield HD FR". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation layer butt joints must be staggered a minimum of 6-in. from the roof deck butt joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU).

Unless otherwise indicated, Classifications for "Sure-Flex PVC" include 50 mil, 60 mil and 80 mil thick membranes. "Sure-Flex PVC FRS " and "Sure-Flex KEE HP" are acceptable alternates to "Sure-Flex PVC" in any applicable Classification. For adhered "Sure-Flex PVC" assemblies, the membrane is adhered with Carlisle Syntec Systems "PVC Bonding Adhesive" or "Low VOC PVC Bonding Adhesive" at 45 to 65-ft^2/gal., Carlisle Syntec Systems "Aqua Base 120 Bonding Adhesive" at 120-ft^2/gal., Carlisle Syntec Systems "HydroBond PVC Adhesive" at 125-ft^2/gal., Ashland "Pliobond 7008" at 165-ft^2/gal., Sika Sarnafil Inc. "Sarnacol 2121" at 125-ft^2/gal. or "Cav-Grip PVC" at 0.75-gal./100-$ft.^2$.

The use of the "Sure-Flex PVC Contour Rib Profiles" may be used over any Classified "Sure-Flex PVC" roof covering system, provided minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" or United States Gypsum Co. "SECUROCK Roof Board" is used as the barrier board. Maximum incline shall be in accordance with the Classification established for the barrier board/membrane roof covering system.

The use of the "Sure-Weld TPO Contour Rib Profiles", spaced minimum 18" on center, may be used over any Classified "Sure-Weld TPO" roof covering system, provided minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" or United States Gypsum Co. "SECUROCK Roof Board" is used as the barrier board. Maximum incline shall be in accordance with the Classification established for the barrier board/membrane roof covering system.

Unless otherwise indicated "Spectro-Weld", "PVW" and "GeoTPO" may be used in lieu of "Sure-Weld" TPO membrane in any applicable Classification.

Unless otherwise indicated Atlas Roofing Corp. "FR 50" is an acceptable alternate for the "FR Base Sheet" at a maximum incline of 1-1/2:12.

UL2218A Impact Resistance:

Any UL Classified Carlisle SynTec Systems utilizing "Sure-Weld", "Sure-Weld EXTRA", "Spectro-Weld", "GeoTPO", "Sure-Weld HS EXTRA", "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", "Sure-Weld FleeceBACK 135", "Sure-Weld AFX 120", "Sure-Weld AFX 135", "Sure-Weld AFX 147", "Sure-Weld AFX 155", "Sure-Weld HS", "Sure-Weld SAT TPO Membrane", "Sure-Weld FleeceBACK RL", or "Sure-Weld FleeceBACK FR" TPO membranes is Classified per ANSI/UL 2218A Class 4 Impact Resistance when any of the following conditions are met:

1. Minimum 72-mil TPO membrane is applied over any combination of substrate layers, as specified in the roof covering systems. The substrate layer(s) may be attached with fasteners and plates.

2. Minimum 60-mil TPO membrane is applied over any of the following substrates: Barrier Board, Oriented Strand Board, Plywood or Slipsheet over Plywood. These substrates may be placed over insulation or additional substrate layers as specified in the roofing systems. The substrate layer(s) may be attached with fasteners and plates.

3. Minimum 45-mil TPO membrane is applied over any combination of substrate layers, as specified in the roof covering systems, and the top substrate layer is attached with adhesives or asphalt. Lower substrate layers may be attached with fasteners and plates, adhesives or asphalt.

Any UL Classified Carlisle SynTec Systems utilizing "Sure-Flex PVC", "Sure-Flex PVC FRS", "Sure-Flex KEE HP", "Sure-Flex KEE HP FRS FleeceBACK", "Sure-Flex PVC FleeceBACK", "Sure-Flex PVC FRS FleeceBACK", "Sure-Flex KEE HP FleeceBACK", "Sure-Flex FleeceBACK RL", "Sure-Flex PVC FleeceBACK FR", "Sure-Flex PVC FRS FleeceBACK FR", "Sure-Flex KEE HP FleeceBACK FR", or "Sure-Flex KEE HP FRS FleeceBACK FR" PVC membranes is Classified per ANSI/UL 2218A Class 4 Impact Resistance when either of the following conditions are met:

1. Minimum 80-mil PVC membrane is applied over any combination of substrate layers, as specified in the roof covering systems. The substrate layer(s) may be attached with fasteners and plates.

2. Minimum 50-mil PVC membrane is applied over any combination of substrate layers, as specified in the roof covering systems, and the top substrate layer is attached with adhesives or asphalt. Lower substrate layer(s) may be attached with fasteners and plates, adhesives or asphalt.

Any UL Classified Carlisle SynTec Systems utilizing "Sure-Tough EPDM", "Sure-Tough FR EPDM", "Sure-White EPDM", "Sure-Seal EPDM", "Sure-Seal FR EPDM", "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100 Membrane", "Sure-White FleeceBACK 115 Membrane", "Sure-White FleeceBACK 145 Membrane", "Sure-Seal FleeceBACK 100 FR", "Sure-Seal FleeceBACK 115 FR", "Sure-Seal FleeceBACK 145 FR", "Sure-Seal AFX 90", "Sure-Seal AFX 105", "Sure-White FleeceBACK 100 FR", "Sure-White FleeceBACK 115 FR", "Sure-White FleeceBACK 145 FR", "Sure-Seal FleeceBACK RL", "Sure-Seal SAT", "Sure-Tough SAT", "Sure-White SAT", or “Sure-Seal Cool Gray EPDM” EPDM membranes is Classified per ANSI/UL 2218A Class 4 Impact Resistance when any of the following conditions are met:

1. Minimum 75-mil EPDM membrane is applied over any combination of substrate layers, as specified in the roof covering systems. The substrate layer(s) may be attached with fasteners and plates.

2. Minimum 60-mil EPDM membrane is attached with adhesives or asphalt over any of the following substrates: Barrier Board, Oriented Strand Board, Plywood or Slipsheet over Plywood. These substrates may be placed over insulation or additional substrate layers as specified in the roofing systems. The substrate layer(s) may be attached with fasteners and plates.

3. Minimum 45-mil EPDM membrane is applied over any combination of substrate layers, as specified in the roof covering systems, and the top substrate layer is attached with adhesives or asphalt. Lower substrate layer(s) may be attached with fasteners and plates, adhesives or asphalt.

Any UL Classified Carlisle SynTec Systems ballasted roof covering system is Classified for ANSI/UL 2218A Class 4 Impact Resistance when applied over any combination of substrate layers, as specified in the roof covering systems.

Class A - Ballasted

Unless otherwise indicated in the systems described below, the insulation and the membrane are laid loosely and surfaced with river

2. **Deck:** C-15/32 **Incline:** See Note
Slip Sheet: — One layer Carlisle Syntec Systems "FR Base Sheet 1s" or GAF "VersaShield FB-1S" or Atlas Roofing Corp. "FR-10".
Insulation (Optional): — Any UL Classified (except EPS and wood fiberboard), any combination, any thickness.
Membrane: — Any UL Classified Carlisle Syntec Systems PVC membrane.
Note: Maximum incline shall be in accordance with Classification established for the membrane roof covering system applied over fiberboard or gypsum, but cannot exceed 1/2:12.

3. **Deck:** NC **Incline:** 2-1/2
Insulation: — See "Referenced Insulations", any combination, any thickness.
Membrane: — "Sure-Flex PVC".

4. **Deck:** NC **Incline:** 2
Insulation: — Rmax Operating LLC "Multi-Max" series, any thickness.

Class C - Fully Adhered (PVC)

1. **Deck:** C-15/32 **Incline:** 1
Insulation: — "Carlisle HP Recovery Board" or any UL Classified wood fiberboard, 1/2 in. thick minimum.
Membrane: — Any UL Classified Carlisle Syntec Systems PVC membrane.

2. **Deck:** NC or C-15/32 **Incline:** Unlimited
Insulation (optional): — Any UL Classified, any combination, any thickness.
Insulation: — See "Referenced Insulations", any combination, any thickness.
Membrane: — "Sure-Flex PVC".

3. **Deleted.**
4. **Deck:** NC or C-15/32 **Incline:** 4-1/2
Insulation (optional): — Any UL Classified, any combination, any thickness.
Insulation: — Rmax Operating LLC "Multi-Max" series , any thickness.
Membrane: — "Sure-Flex PVC".

5. **Deck:** C-15/32 **Incline:** 1/2
Insulation (Optional): — Any UL Classified insulation, any thickness.
Cover Board: — "EcoStorm VSH Coverboard", minimum 5/16-in. thick, with all butt joints staggered a minimum of 6-in. from the plywood roof deck butt joints.
Membrane: — Any UL Classified PVC membrane.

Class A — Adhered FleeceBACK (EPDM, TPO, & PVC)

In any of the following systems, concrete decking, Georgia-Pacific Gypsum LLC "DensDeck® Overlayment Board" or United States Gypsum Co. "SECUROCK Gypsum Fiber Roof Board" may be primed with an acceptable primer and optionally covered with "VapAir Seal 725TR".

Unless otherwise indicated, the following adhesives may be used as alternates to one another in any of the following systems:

Adhesive	Alternate
"FAST 100 LV"	

	"Cav-Grip III Adhesive/Primer", "FAST Dual Cartridge Adhesive", and "FAST 5-Gallon Jug Adhesive"
"Flexible FAST® Adhesive"	"Flexible FAST 5-Gallon Jug Adhesive", "Flexible FAST Dual Cartridge Adhesive", and "Flexible FAST® Dual Tank Adhesive"

Unless otherwise noted, Insulfoam LLC "Insulfoam SP", minimum 1 in. thick, can be used in lieu of polyisocyanurate insulation in any of the following systems.

1. **Deleted.**
2. **Deleted.**
3. **Deleted.**

3A. **Deleted.**

4. **Deleted.**

4A. **Deleted.**

5. **Deleted.**
6. **Deleted.**
7. **Deleted.**
8. **Deleted.**
9. **Deleted.**

10. **Deck:** C-15/32 **Incline:** See Note

Slip Sheet: — Two layers Carlisle Syntec Systems "FR Base Sheet 2S", GAF "VersaShield Underlayment" or "VersaShield FB-2S", or three layers Carlisle Syntec Systems "FR Base Sheet 1S" or GAF "VersaShield FB-1S".

Insulation (Optional): — Any UL Classified (except EPS), any combination, any thickness.

Membrane: — "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100", "Sure-White FleeceBACK 115", "Sure-White FleeceBACK 145", "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127" and "Sure-Weld FleeceBACK 135", "Sure-Flex KEE HP FRS FleeceBACK 105", "Sure-Flex KEE HP FRS FleeceBACK 115", "Sure-Flex KEE HP FRS FleeceBACK 135", "Sure-Flex PVC FleeceBACK 105", Sure-Flex PVC FleeceBACK 115", "Sure-Flex PVC FleeceBACK 135", "Sure-Flex PVC FRS FleeceBACK 105", “Sure-Flex PVC FRS FleeceBACK 115", "Sure-Flex PVC FRS FleeceBACK 135", "Sure-Flex KEE HP FleeceBACK 105", Sure-Flex KEE HP FleeceBACK 115", and "Sure-Flex KEE HP FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Dual Cartridge Adhesive”, “Flexible FAST Dual Tank Adhesive”, “FAST Dual Cartridge Adhesive”, “FAST Dual Tank Adhesive”, “Flexible FAST® 5-Gallon Jug Adhesive”, “Flexible FAST® Adhesive”, “FAST® 5-Gallon Jug Adhesive”, or “FAST® 100 LV” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}
- "Cav-Grip III Adhesive/Primer" applied at 0.45-gal./100-ft.^{2}
- "Aqua Base 120" applied at 100 to 120-ft.²/gal
- "HydroBond Water-Based Adhesive" applied at 100-ft.²/gal

Note: Maximum incline shall be in accordance with Classification established for the insulation/membrane roof covering system when insulation is used or established for the membrane roof covering system applied over fiberboard or gypsum when insulation is not used, but cannot exceed 2:12.

10A. **Deck:** C-15/32 **Incline:** See Note

Slip Sheet: — Three layers Carlisle Syntec Systems "FR Base Sheet 1s" or GAF "VersaShield FB-1S".

Insulation (Optional): — Any UL Classified (except EPS and wood fiberboard), any combination, any thickness.
Membrane: — "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100", "Sure-White FleeceBACK 115", and "Sure-White FleeceBACK 145" (see adhesion methods).
Adhesion Methods:

- “Flexible FAST® Dual Cartridge Adhesive”, “Flexible FAST Dual Tank Adhesive”, “FAST Dual Cartridge Adhesive”, “FAST Dual Tank Adhesive”, “Flexible FAST® 5-Gallon Jug Adhesive”, “Flexible FAST® Adhesive”, “FAST® 5-Gallon Jug Adhesive”, or “FAST® 100 LV” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}
- "Cav-Grip III Adhesive/Primer" applied at 0.45-gal./100-ft.^{2}
- "Aqua Base 120" applied at 100 to 120-ft.²/gal
- "HydroBond Water-Based Adhesive" applied at 100-ft.²/gal

Note: Maximum incline shall be in accordance with Classification established for the insulation/membrane roof covering system when insulation is used or established for the membrane roof covering system applied over fiberboard or gypsum when insulation is not used.

10B. **Deck:** C-15/32 **Incline:** See Note
Slip Sheet: — Two layers Carlisle Syntec Systems "FR Base Sheet 1s" or GAF "VersaShield FB-1S" or Atlas Roofing Corp. "FR-10".
Insulation (Optional): — Any UL Classified (except EPS and wood fiberboard), any combination, any thickness.
Membrane: — "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100", "Sure-White FleeceBACK 115", and "Sure-White FleeceBACK 145" (see adhesion methods).
Adhesion Methods:

- “Flexible FAST® Dual Cartridge Adhesive”, “Flexible FAST Dual Tank Adhesive”, “FAST Dual Cartridge Adhesive”, “FAST Dual Tank Adhesive”, “Flexible FAST® 5-Gallon Jug Adhesive”, “Flexible FAST® Adhesive”, “FAST® 5-Gallon Jug Adhesive”, or “FAST® 100 LV” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}
- "Cav-Grip III Adhesive/Primer" applied at 0.45-gal./100-ft.^{2}
- "Aqua Base 120" applied at 100 to 120-ft.²/gal
- "HydroBond Water-Based Adhesive" applied at 100-ft.²/gal

Note: Maximum incline shall be in accordance with Classification established for the insulation/membrane roof covering system when insulation is used or established for the membrane roof covering system applied over fiberboard or gypsum when insulation is not used, but cannot exceed 3/4:12

11. **Deck:** NC **Incline:** 1/4
Insulation: — Hunter Panels "H-Shield ca" or Johns Manville "ENRGY3" any combination, any thickness.
Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135", adhered with "FAST® 100 LV" adhesive", applied at a rate of 1-gal./100-ft.^{2} or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center, or "Cav-Grip III Adhesive/Primer", applied at a rate of 0.45 gal./100-ft^2.

12. **Deck:** NC **Incline:** 1/2
Insulation: — See "Referenced Insulations" except Hunter Panels "H-Shield ca" or Johns Manville "ENRGY3", any combination, any thickness.
Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-

- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

30. **Deck:** NC **Incline:** 1

Insulation: — Any UL Classified, any thickness.

Insulation: — "Carlisle HP Recovery Board" or 1/2 in. thick minimum wood fiberboard.

Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Adhesive”, “Flexible FAST Dual Tank Adhesive” or “FAST Dual Tank Adhesive” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

30A. **Deck:** NC **Incline:** 1

Substrate: — Cellular concrete, gypsum concrete, precast concrete with grouted joints or structural (poured-in-place) concrete.

Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Adhesive”, “Flexible FAST Dual Tank Adhesive” or “FAST Dual Tank Adhesive” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

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31. **Deck:** C-15/32 **Incline:** 2

Insulation (Optional): — Any UL Classified , any combination, any thickness.

Barrier Board: — 1/2 in. thick minimum gypsum board or 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck®".

Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Adhesive”, “Flexible FAST Dual Tank Adhesive” or “FAST Dual Tank Adhesive” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

32. **Deleted.**

33. **Deleted.**

34. **Deleted.**

35. **Deleted.**

36. **Deleted.**

37. **Deleted.**

38. **Deleted.**

39. **Deleted.**

40. **Deck:** C-15/32 **Incline:** 1

Insulation (Optional): — Any UL Classified , any combination, any thickness.

Evaluation Report, authorized by ICC-ES and provided for your convenience.

Trademark and/or Tradename: "CCW", "Carlisle Syntec Systems SynTec Systems", "Carlisle Syntec Systems Coatings & Waterproofing", "Carlisle Syntec Systems Residential", "Hunter Panels", "Insulfoam", "Versico Roofing Systems", "WeatherBOND"

Last Updated on 2024-12-06

MAY

1175 Peachtree Street NE
Colony Square Building 100
Suite 1800
Atlanta, GA 30361
404 614 0700
www.mayarchitecture.com

Submittal Review

Review Notes:

- Color selection : White

- Provide necessary documentation for warranty as listed in spec 07 54 23 Section 1.12.

- The specified thickness is 135 mils including fleece backing.

- Provide necessary documentation for Fire-Test-Response Characteristic as listed in spec 07 54 23 section 1.06 D. 3

Revise and resubmit

Reviewed by: Ivette Hamel

Date: 01/07/2025

May Architecture

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for quantities; dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with the Contract Documents.

General Review Comments

Note: The following list may not comprise all of the submittal review comments. At times a graphic marking on the submittal is required to convey a comment. Therefore, refer also to the submittal itself for possible additional comments. The above comments plus any on the submittal itself comprise the comments related to this review.

Gerrits Construction

8177 Glades Rd, Suite 206
Boca Raton, FL 33481-0813
Telephone (561) 477-3553
Fax (561) 477-0876

Submittal cover page

To: May Architecture & Interior	**Project No:**
ATTN: Joseph Okelarin & Todd Combs	**Date:** 11.12.2024
CC: Bill Alexander & Sarah Wagner	**Re:**

WE ARE SENDING THE FOLLOWING INFORMATION:

☒ ATTACHED EMAIL ☐ BY MAIL ☐ BY EXPRESS ☐ BY HAND ☒ SHOP DRAWINGS ☐ PRINTS ☐ PLANS
☐ SAMPLES ☐ SPECIFICATIONS ☐ COPY OF LETTER ☐ CHANGE ORDER ☒ MANUF. DATA

COPIES	DATE	#	DESCRIPTION
	11/12/24	2413-089-1.1-075423	TPO Thermoplastic Roofing

REMARKS:

☒ For approval ☒ Urgent ☐ For your use ☐ Reply ASAP ☐ Please comment

Date Reviewed: 11.12.2024

Submittal No.: 2413-089-1.1-075423

Review of this shop drawing is limited to general design requirements of the contract documents and the general compliance therewith. This review does not relieve the subcontractor / supplier / manufacturer ("Offeror") of the responsibility for compliance with the contract documents, subcontract agreement / purchase order, and applicable codes. Verification of all actual dimensions, field conditions, and coordination with other trades is the sole responsibility of the offeror(s).

(✓) Acceptance Recommended
( ) Acceptance Recommended as Noted
( ) Other – Please Advise if Acceptable
( ) Revise and Resubmit
( ) Rejected

By: JP

CARLISLE
SYNTEC SYSTEMS

Select Medical, Miami Lakes

Select Medical, Miami Lakes

Table of Contents

November 11, 2024

NATIONS ROOF SOUTHERN FLORIDA LLC - 270208
3772 N.W. 126 AVENUE
CORAL SPRINGS, FL 33065
United States

Project: Authorized Applicator Letter

To Whom It May Concern:

This letter is to confirm that NATIONS ROOF SOUTHERN FLORIDA LLC - 270208 in CORAL SPRINGS, FL is a Carlisle Authorized Applicator.

If you should have any further questions, please feel free to contact me.

Sincerely,

Shannon Wyatt
Southeast Regional Sales Manager

CARLISLE SYNTEC SYSTEMS

FleeceBACK® TPO Membranes

Overview

FleeceBACK TPO membranes are manufactured using a hot-melt extrusion process for complete scrim encapsulation. Once the TPO is reinforced and enhanced with fleece, the total sheet thicknesses available are 100-, 115-, and 135-mils, creating a very tough, durable and versatile sheet that is ideal for re-roofing or new construction projects. FleeceBACK TPO sheets are chlorine free and plasticizer free with excellent chemical resistance to acids, bases, restaurant oils, and greases.

All FleeceBACK TPO membranes utilize Octaguard XT™ weathering package technology to withstand extreme durability testing intended to simulate exposure to severe climates. FleeceBACK TPO's advanced polymerization technology combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene.

FleeceBACK TPO membranes are intended to be used with adhered or mechanically fastened roofing systems. FleeceBACK TPO is ideally suited for roof garden and solar panel applications and projects demanding superior wind uplift resistance due to its added toughness and durability. FleeceBACK TPO is also a great solution for buildings requiring low noise and odors during roofing application.

Features and Benefits

- No VOCs, low odor, low noise, and speed of application minimizes occupied building disruptions
- Superior wind uplift performance and ratings (up to an FM 1-990) due to a mechanical bond between fleece and adhesive
- 75% fewer seams than Modified Bitumen
- Wide window of weldability
- Fleece reinforcement adds toughness, durability, and enhanced puncture resistance
  - 115-mil membrane delivers 33% greater puncture resistance and 33% greater breaking strength than 60-mil TPO
  - Greater puncture resistance than Modified Bitumen
- Excellent hail damage resistance:
  - Passes FM's severe hail test
  - Passes UL-2218 Class 4 rating
  - Passes National Bureau of Standards – 23 Ice Ball test up to 3"-diameter hail with the membrane cooled to 32°F
- Standard Colors:

White | Gray | Tan

- Special Colors:

Slate Gray | Med Bronze | Terra Cotta | Patina Green | Rock Brown

*Sure-Weld® HS Special Color TPO membranes are available in limited sizes. Refer to Carlisle's Sure-Weld HS TPO Special Color Program Sell Sheet for details.

Sustainable Attributes

Carlisle SynTec Systems' focus has always been innovation - Innovation to solve problems, improve performance, reduce labor, and above all, improve sustainability. Carlisle is committed to driving sustainable and efficient processes in the design and manufacturing of our products.

- Up to 10% pre-consumer recycled content
- Free of Living Building Challenge red list chemicals
- NSF P151 Certification for rainwater catchment*
- 3rd-party verified Environmental Product Declaration available

*Plant 91/White only

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO Membranes

Optional APEEL™ Protective Film

Shield Carlisle's FleeceBACK TPO membrane from dirt and scuffs during installation with APEEL Protective Film. Factory-applied and easy to remove, APEEL eliminates the need for rooftop cleaning upon project completion.

- Ideal for re-roofing, re-cover, and new construction projects
- Simple and easy to remove
- Saves time and money when compared to pressure washing
- Protecting from dirt maintains maximum membrane reflectivity and long-term performance

Installation

Simply order membrane with APEEL, install, and remove the film to reveal a clean, new roof.

- APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance .
- When the installation of the entire roofing system is complete, remove and discard the APEEL Protective Film.

Installation

Adhered Roofing System

Insulation is mechanically fastened or adhered. Spray-apply, splatter, or extrude Flexible FAST™ Adhesive to the substrate and allow foam to "string/body" approx 1–2 minutes prior to setting FleeceBACK TPO into the Flexible FAST Adhesive. Roll FleeceBACK TPO membrane with a 30"-wide, 150-pound weighted roller to ensure full embedment. Splices are hot-air welded. End laps are butted and sealed with reinforced membrane or a head sheet may be utilized.

Review Carlisle specifications and details for complete installation information, including mechanically fastened options.

Precautions

- Use proper stacking procedures to ensure sufficient stability.
- Exercise caution when walking on wet membrane.
- Sunglasses that filter out ultraviolet light are strongly recommended, as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
- White surfaces reflect heat and may become slippery due to frost and ice accumulation.
- Care must be exercised when working close to a roof edge when the surrounding area is snow covered.
- FleeceBACK TPO membrane rolls must be tarped and elevated to keep dry prior to installation. If the fleece gets wet, use a wet vac system to help remove moisture from the fleece. DO NOT INSTALL MEMBRANE IF FLEECE IS WET.
- FleeceBACK TPO membrane exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

Supplemental Approvals, Statements and Characteristics:

1. FleeceBACK TPO meets or exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.
2. Radiative Properties for Cool Roof Rating Council (CRRC) and LEED.
3. FleeceBACK TPO membranes conform to requirements of the US E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
4. FleeceBACK TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 100-mil was watertight after an impact energy of 20 joules, 115-mil was watertight after 25 joules, and 135-mil was watertight after 32.5 joules.

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO
Membranes

LEED® Information

Pre-consumer Recycled Content	10%		
Post-consumer Recycled Content	0%		
Manufacturing Location	Senatobia, MS; Tooele, UT		
Solar Reflectance Index	White: 99	Gray: 52	Tan: 86

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

Physical Property	Test Method	White	Tan	Gray
CRRC – Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC – Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC – Initial thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED – Thermal emittance	C1371	0.90	0.86	0.85
Solar Reflectance Index (SRI) – Initial	ASTM E1980	99	86	52
Solar Reflectance Index (SRI) – Aged 3 Years	ASTM E1980	85	77	49

Carlisle Extreme Testing – Heat Aging

		ASTM Requirement	FleeceBACK TPO Requirement
ASTM Test	240°F	32 weeks*	>128 weeks

*Comparable to 3,120 weeks (6 years) at 185°F for 8 hrs/day.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Carlisle Extreme Testing – Environmental Cycling

–10 days heat aging at 240°F (116°C) followed by 5 days water immersion at 158°F (70°C)
Followed by 5,040 kJ/m² (2000 hrs. at 0.70 W/m² irradiance) xenon-arc exposure

Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion followed by xenon-arc exposure.

Carlisle Testing – Q-Trac

	ASTM D6878 Requirement	Sure-Weld Requirement
ASTM TEST N/A	N/A	Equivalent of 40 years of exposure

Radiative Properties (Initial) for Special Colors

	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.

EXTREME Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose." Carlisle's goal is to produce TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM D6878.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Carlisle requires its Sure-Weld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

FleeceBACK TPO
Membranes

Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (Min.)	FleeceBACK TPO Typicals
Tolerance on Nominal Thickness, %	ASTM D751	±10	±10
Thickness over Fleece, min 100-mil (2.54 mm) 115-mil (2.92 mm) 135-mil (3.43 mm)	 — — —	 — — —	 .045 (1.14) .060 (1.52) .080 (2.03)
Weight, lbm/ft² 100-mil 115-mil 135-mil	 — — —	 — — —	 0.27 0.33 0.46
Breaking Strength, min, lbf (kN) 100-mil 115-mil 135-mil	ASTM D751 Grab Method	220 (1)	 375 (1.7) 450 (2) 500 (2.2)
Elongation at break of internal fabric, %	ASTM D751	15	25
Tearing Strength, min, lbf (N) 100- & 115-mil, 135-mil	ASTM D751 B Tongue Tear	 55 (245)	 100 (445)
Puncture Resistance, Joules 100-mil 115-mil 135-mil	ASTM D5635	 — — —	 20 25 32.5
Puncture Resistance, lbf 100-mil 115-mil 135-mil	FTM 101C Method 2031	 350 400 425	 450 525 600
Brittleness point, max, °F (°C)	ASTM D2137	-40 (-40)	-50 (-46)
Linear Dimensional Change, %	ASTM D1204	± 1 max	-0.2 typical
Field Seam Strength, lbf/in. (kN/m) ASTM D1876 tested in peel 100-mil 115-mil 135-mil	ASTM D1876	 25 (4.4) 25 (4.4) 40 (7.0)	 50 (8.8) 60 (10.5) 70 (12.3)
Water Vapor Permeance, Perms	ASTM E96 Proc B	—	0.10 max, 0.05 typical
Resistance to Microbial Surface Growth, Rating (1 is very poor, 10 is no growth)	ASTM D3274	—	9-10 typical
Properties after heat aging–ASTM D573, 670 hrs. at 240 °F Breaking strength, % retained Elongation reinf. % retained Tearing Strength, % retained Weight Change, %	ASTM D573	 — — — —	 90 min 90 min 60 min ± 1.0 max
Ozone Resistance 100 pphm, 168 hours	ASTM D1149	No cracks	No cracks
Resistance to Water Absorption After 7 days immersion @ 158°F (70°C) Change in mass, max, % (one side)	ASTM D471	± 3.0	0.90
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m² irradiance, 80°C black panel temp. 100-mil 115-mil 135-mil	ASTM G155	No cracks; No loss of breaking or tearing strength	No cracks; No loss of breaking or tearing strength 17,640 kj/m² 20,160 kj/m² 27,720 kj/m²

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CARLISLE SYNTEC SYSTEMS

HFC-FREE

Flexible FAST™ Dual Tank Adhesive

Productivity Boosting Features and Benefits:

- Reduces labor by eliminating equipment maintenance and breakdowns
- Application time reduced up to 15% when compared to low-pressure dispensing machines
- Increased productivity when Dual Tanks are used simultaneously (each additional Dual Tank can increase productivity up to 100%)

PRODUCTIVITY BOOSTER

Overview

Carlisle's Flexible FAST Dual Tank Adhesive is a two-component, construction-grade, low-rise polyurethane adhesive designed for bonding Carlisle's FleeceBACK® membranes and/or insulation to various substrates. Now featuring an HFO blowing agent, Flexible FAST Dual Tanks have improved characteristics compared to products that use an HFC blowing agent.

Flexible FAST Dual Tank Adhesive is compatible with: HP Recovery Board, InsulBase® Polyiso, SecurShield® Polyiso, SecurShield HD, SecurShield HD Plus, expanded polystyrene (EPS), extruded polystyrene (XPS), spray polyurethane foam (new or scarified SPF), DensDeck®, SECUROCK®, and StormBase®.

Compatible deck types include concrete, cellular lightweight concrete (LWC), gypsum, cementitious wood fiber, wood, and painted or galvanized steel. Flexible FAST Dual Tank Adhesive is also compatible with the following roofing materials: smooth (previously exposed) BUR, mineral cap sheets, smooth (previously exposed) or granulated mod bit, aged EPDM, aged Hypalon®, and Carlisle's VapAir Seal™ 725TR Air and Vapor Barrier.

Flexible FAST EU Dual Tanks meet the requirements for pressurized tanks for the European Union. The features, benefits, installation, storage, and precaution criteria listed on this PDS also apply to Flexible FAST EU Dual Tanks.

Features and Benefits

- VOC free, self-contained system
- HFO blowing agent
  - Green alternative, offering low GWPs and zero ODPs
  - Easier and more efficient splatter application; dispenses in a more uniform pattern
  - Improved coverage rates by up to 16% versus other canister based insulation and membrane adhesives
  - Improved rise and cell structure
  - Improved and more obvious string time
- Non-penetrating, low noise, low odor
- Superior wind uplift performance
- Added puncture resistance of 33-50% compared to competitive two-component low-rise adhesives
- Consistent elongation properties up to 150%
- FM, UL, Miami Dade and Florida building approvals

CARLISLE SYNTEC SYSTEMS

Flexible FAST Dual Tank Adhesive

Coverage Rate

FleeceBACK membrane or insulation attachment to lightweight concrete, concrete, plywood and OSB, plank wood, steel, smooth BUR, mod-bit, mineral cap sheets, SPF, or multiple layers of insulation:

(Application rates may vary depending on ambient temperatures, surface, and substrate absorption rate.)

Approximate Coverage Rate (Sq. Ft.)	Splatter*	4" o.c.	6" o.c.	12" o.c.
	2,600-2,800	1,100-1,300	1,700-1,900	3,500-3,700

*Dual Tank splatter approved for membrane attachment to smooth flat surfaces only. Dual Tank splatter is not approved for insulation attachment.

May vary depending on climate, temperature, humidity, and equipment. Please consult Carlisle for project-specific bead widths and spacing.

Application

Substrate Preparation

1. The surface to which adhesive is to be applied shall be dry, free of fins, protrusions, sharp edges, loose or foreign material, oil, and grease. Depressions greater than ¼" shall be filled with adhesive or other approved patching material. All sharp projections shall be removed.
2. Seal gap between the wall/penetrations and concrete deck with VapAir Seal 725TR, Flashing Foam, or other suitable material to avoid condensation or air infiltration issues.
3. Apply Flexible FAST Dual Tank Adhesive when substrate and ambient temperature are 25°F or above.
4. Bead spacing is minimum. Depending on warranty length and wind coverage, ribbon spacing may be reduced. Refer to published specification and warranty.
5. Previously unexposed asphalt must be primed with CAV-GRIP® III.

Setup

Note: When spraying the dispensing unit for the first time, or when starting a new kit, Carlisle recommends that users trigger the gun only a quarter to halfway open until the desired output and spray pattern is achieved. This allows complete control of the flow rate and spray pattern that best fits the application.

1. Spray gloves, long sleeves, and protective glasses should be worn during setup and dispensing.
2. In colder temperatures, it is recommended to utilize heated blankets to ensure the tanks are kept warm while dispensing the product.
3. Shake kits for 15 – 20 seconds before use.
4. Connect hoses to tanks prior to opening the A and B tank valves.
5. Before attaching the nozzle to the dispensing unit, apply a generous amount of petroleum jelly to the face. This will help to prevent contamination by cured foam or chemicals and will help to keep the sealing ports clean. Detailed instructions for attaching the nozzle are included in packaging for A-side tanks.
6. **When applying Flexible FAST Dual Tank Adhesive as a bead, the 14" extension nozzle is required and must be attached to the end of the gun tip before dispensing adhesive. Attach the nozzle extension by rotating the extension tip clockwise onto the end of the gun tip.**
7. **When applying Flexible FAST Dual Tank Adhesive as a splatter application, the 14" extension nozzle should not be used. Splatter application can be achieved by triggering the gun from a distance of 2' – 3' off the deck. Adhesive should be dispersed using a horizontal back and forth motion, achieving 50% coverage of the substrate at 3.75 lbs/sq.**
8. Once the trigger is released, it MUST BE REACTIVATED WITHIN 15 SECONDS or a new nozzle must be installed. Failure to do this could result in chemical leakage, spills, or splashes which can ruin the dispensing unit and/or hoses.
9. After releasing the trigger, activate the trigger safety to prevent accidental discharge.
10. The dispensing unit face can be kept clean by using petroleum jelly on the face or using a soft cloth to remove residue.
11. **Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.**

Storage

1. Close tank valves.
2. Do not store at temperatures above 100°F or below 40°F for long periods of time.
3. The used nozzle should be removed and the dispensing unit should be cleaned with a splice wipe to help keep outlet ports clean and free from any dust, dirt, or chemicals that can affect the proper sealing of the nozzle. ALWAYS engage the trigger safety and close all supply valves during storage. Do not purge adhesive from hose.
4. Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.

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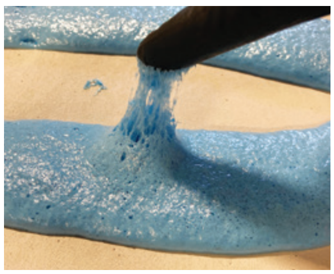
Flexible FAST Dual Tank Adhesive

Application of petroleum jelly to spray gun

Shaking of A-side and B-side tanks

Apply using extension nozzle



Performing the string-time test

Re-use of Dispensing Unit After Storage

1. Check the face of the dispensing unit to ensure outlet ports are clear and the face of the unit is free from dirt, chemicals, or other debris. If necessary, use a soft cloth or rag to remove any cured foam or chemicals from the face of the dispensing unit. The use of petroleum jelly is recommended to cover the face of the dispensing unit to prevent further contamination or if chemical is accidentally leaked into this area.
2. Attach a new or cleaned nozzle to the dispensing unit.
3. Shake kits for 15–20 seconds before use.

FleeceBACK Membrane Attachment
Slide-in Method:

1. Unroll FleeceBACK sheet and position. Fold the sheet back in half lengthwise (end-to-end).
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once "string time" occurs, gradually feed FleeceBACK sheet into Flexible FAST Adhesive, checking for "string/body" every few feet. Stop feeding FleeceBACK sheet into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Roll-in (Mod Bit) Method:

1. Keeping the FleeceBACK sheet on the core, position roll of FleeceBACK membrane at the designated starting point.
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once "string time" occurs, gradually roll FleeceBACK membrane into Flexible FAST Adhesive, checking for "string/body" every few feet. Stop rolling FleeceBACK into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Insulation Attachment:

1. Dispense Flexible FAST Dual Tank Adhesive at the appropriate coverage rate. For steel decks, beads of adhesive must run parallel with, and be on top of, all of the flutes.
2. Place insulation boards (maximum 4' x 4' insulation boards when adhesive is dispensed at 12" o.c. or when boards exceed 4" thickness, or 4' x 8' insulation boards when adhesive is applied at 4", or 6" beads) into adhesive after allowing it to rise and develop "string/body". String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.
3. Bead spacing parameters for 5, 10, 15, or 20-year 55-mph warranties: (Contact Carlisle Project Review for bead spacing on higher mph warranties and 30-year warranty projects).

Building Height	Bead Spacing (Perimeter)	Bead Spacing (Field)
0' – 25'	6" o.c. - 4'	12" o.c.
26' – 50'	6" o.c. - 8'	12" o.c.
51' – 75'	6" o.c. - 12'	12" o.c.
76' – 100'	6" o.c. - 16'	12" o.c.
101' or greater	6" o.c. - 24'	12" o.c.

4. Designate one person to walk boards into place and then roll with a 150-lb. segmented roller 5 to 7 minutes from the initial adhesive application. Boards may be temporarily weighted or relief cut where necessary to keep boards in constant contact with the adhesive until adhesive is cured.
5. At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of boards to ensure a tight bond has been created and maximum contact has been achieved.

Review Carlisle specifications and details for complete application information.

CARLISLE SYNTEC SYSTEMS

Flexible FAST Dual Tank Adhesive

Disposal Procedures:

1. Eye protection and impervious gloves MUST be worn during disposal procedures.
2. **DO NOT dispose of, puncture, or incinerate cylinder tanks while under pressure.**
3. When the job is completed or tanks are empty, pressure must be released from the tanks.
4. With the tank valves open, trigger Dual Tank gun open 100%, discharging remaining adhesive, as well as pressure and propellant, into a lined waste container.
5. After cylinders are empty of all pressure and propellant, tanks must be vented. **CAUTION: tanks could still be under pressure.**
6. Close valves and release remaining pressure from hoses. Remove hoses, flip tank upside down, and with tank valve positioned AWAY from face and others, slowly reopen tank valve and allow excess pressure and or chemical to drain into a lined waste container and allow pressure to completely vent.

   CAUTION: All pressure MUST be vented 100%. Empty tanks could contain potential vapor toxicity hazard. Provide adequate ventilation or respiratory protection (consult SDS).
7. Once cylinder is empty and vented, carefully puncture the friable disc on the top of the cylinder. Cylinders should sit for 30 minutes prior to disposal.
8. DISPOSE OF EMPTY CYLINDERS AND EXCESS CHEMICAL ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
9. For recycling information, check with local municipality, or contact Clean Earth.

Clean Earth Locations

Address	City/State/Zip	Phone Number
1689 Shar-Cal Road	Calvert City, KY 42029	270-605-2105
1750 Morgantown Industrial Park	Morgantown, WV 26501	304-292-0659
402 Webster Chapel Road	Glencoe, AL 35905	800-739-9156
30677 Huntwood Avenue	Hayward, CA 94544	510-429-1129
1733 Morgan Road	Modesto, CA 95358	510-429-1129
4132 Pompano Road	Charlotte, NC 28216	704-395-9559

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Tomball, TX

For more information on substrate compatibility, please refer to the chart found on the Flexible FAST Adhesive Product Data Sheet.

Precautions

- **Flexible FAST Dual Tank splatter application is NOT approved for walls.**
- Review the applicable Safety Data Sheet (SDS) for complete safety information prior to use.
- The foam produced is an organic material. It must be considered to be combustible and may constitute a fire hazard. Foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with prefilters and solvent-resistant cartridges if concentrations of MDI exceed the TLV or are unknown. Proper safety training is essential for all persons involved in the application process. If inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long sleeves and pants. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil.

  NOTE: Nitrile gloves are required when handling Part A directly.
- Extended storage temperatures in excess of 90°F may affect product shelf life.
- Do not store in temperatures below 40°F.
- Do not allow material to freeze.
- If the components are stored at temperatures lower than 70°F, restore to 70°F before using adhesive.
- High-slope applications require adhesive to be applied to the back of the insulation board on a flat surface.
- KEEP OUT OF THE REACH OF CHILDREN.

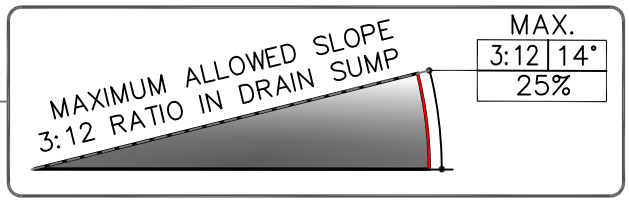
Typical Properties and Characteristics

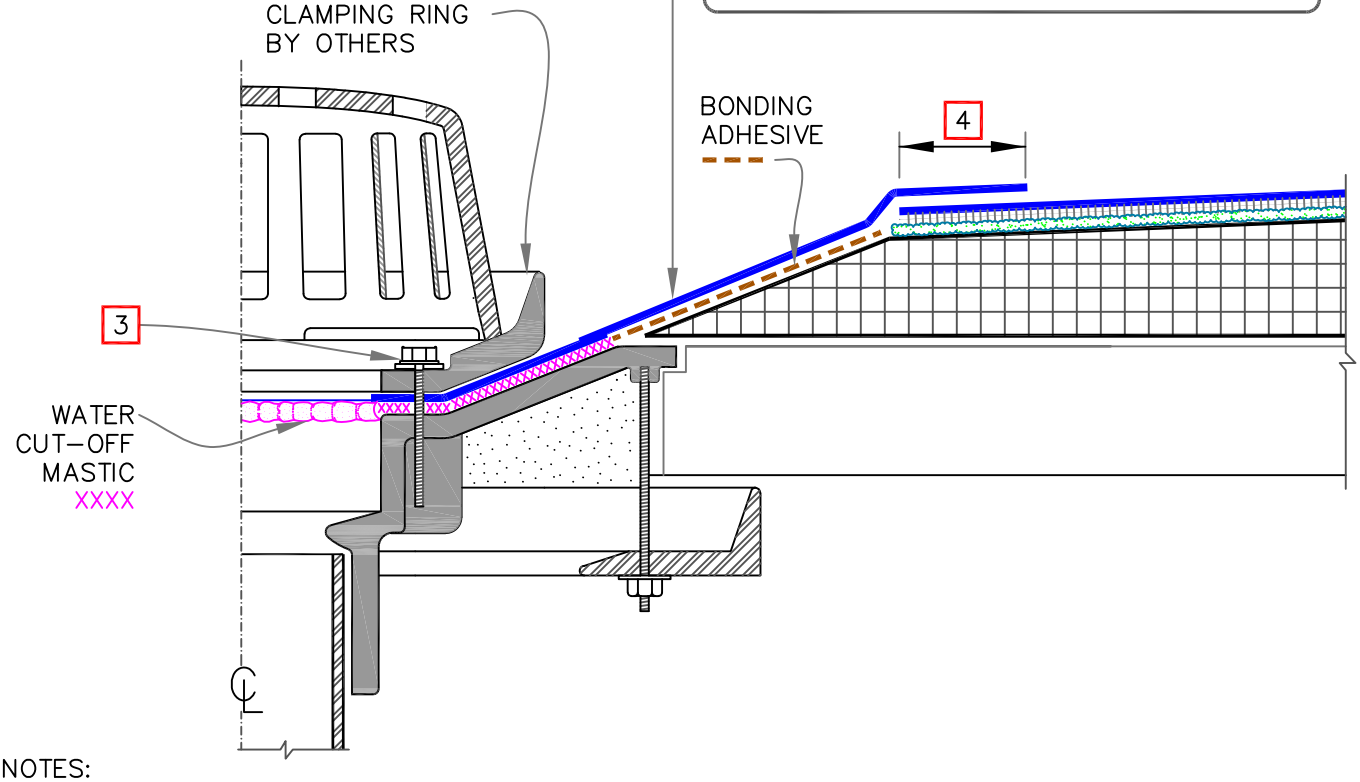
	Dual Tank-A	Dual Tank-B
Base	Polymeric Isocyanate	Polyols, Surfactants, Catalyst
Average Net Weight	9.8 lbs/gal	9.3 lbs/gal
Packaging	62 lbs (28.1kg)	54 lbs (24.5 kg)
Shelf Life	1 year	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

CAUTION

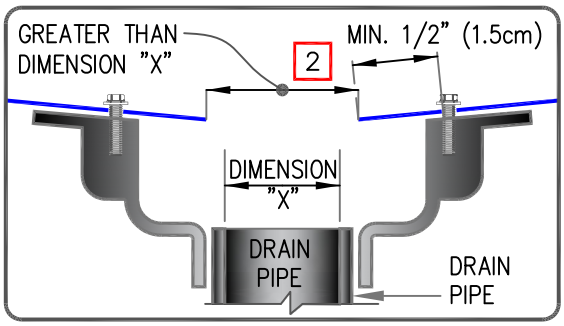
EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE FIELD APPLIED SecurTAPE FOR PROJECTS WITH 20, 25 & 30-YEAR WARRANTIES.





NOTES:

1. REMOVE EXISTING LEAD, FLASHING MATERIAL & ENSURE THE DRAIN RING IS COMPLETELY CLEAN DOWN TO BARE METAL.
2. THE HOLE IN THE MEMBRANE SHALL EXCEED THE DIAMETER OF THE DRAIN PIPE, BUT SHALL BE NO LESS THAN 1/2" (1.5cm) FROM THE ATTACHMENT POINTS OF THE DRAIN CLAMPING RING.
3. ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON WATER CUT-OFF MASTIC.
4. SPLICES SHALL BE COMPLETED USING MIN. 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1-1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.
5. FIELD SPLICES MUST BE LOCATED AT LEAST 6 INCHES (15cm) OUTSIDE THE DRAIN SUMP.
6. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT-EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.
7. ROOF DRAIN SIZE AND NUMBER OF DRAINS SHALL BE IN ACCORDANCE WITH THE LOCAL CODES.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

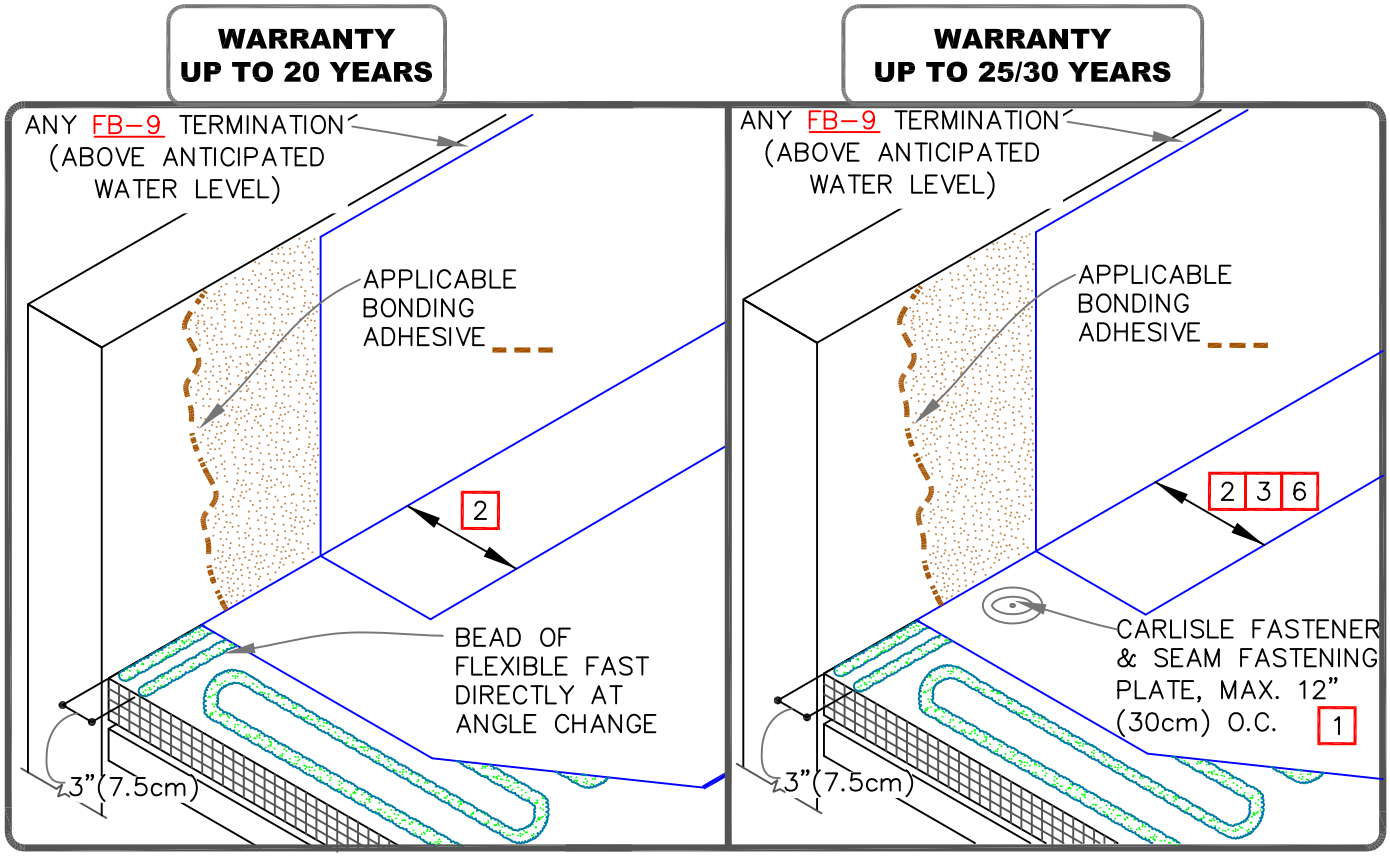
ROOF DRAIN WITH SEPARATE TARGET SPLICE

MAXIMUM WARRANTY: 30 YEARS

DETAIL NO.
FB-6B.1
FLEECEBACK ADHERED

CAUTION

REFER TO DETAIL FB–12C WHEN USING AQUA BASE 120 ADHESIVE OR HYDROBOND.



NOTES:

1. MECHANICALLY FASTENED BASE SECUREMENT IS REQUIRED WHEN ANY ONE OF THE FOLLOWING MAY OCCUR:
   - 1.1. SPECIFIED WARRANTIES GREATER THAN 20–YEARS.
   - 1.2. WARRANTY WIND SPEEDS GREATER THAN 90MPH.
   - 1.3. PROJECTS WITH CONTROL OR EXPANSION JOINTS OR ANTICIPATED BUILDING MOVEMENT.
   - 1.4. WHEN FLEECEBACK MEMBRANE IS INSTALLED DIRECTLY OVER AN EXISTING SINGLE–PLY ROOF.

2. SPLICES SHALL BE COMPLETED USING MINIMUM 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1–1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.

3. EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE SECURTAPE FOR PROJECTS WITH 25 AND 30–YEAR WARRANTIES.

4. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT–EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.

5. WHEN USING 60 OR 80–MIL REINFORCED THERMOPLASTIC MEMBRANE FLASHING, APPLY A 4–1/2" (11cm) DIAMETER THERMOPLASTIC "T–JOINT" COVER AT ALL FIELD SPLICE INTERSECTIONS.

6. 3" AND 6" FIELD APPLIED TAPE MUST BE OUTSIDE PLATES.

7. ALL EPDM SPLICE INTERSECTIONS REFER TO FB–2 DETAILS.

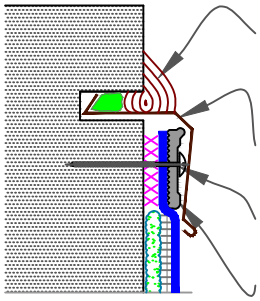
FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

PARAPET/CURB WITH SEPARATE MEMBRANE – BEAD APPLIED

MAXIMUM WARRANTY: SEE EACH DETAIL

DETAIL NO.
FB–12A.1B
FLEECEBACK ADHERED

9A MECHANICAL TERMINATION WITH COUNTER FLASHING



CARLISLE UNIVERSAL SINGLE-PLY SEALANT OR SEALANT (BY OTHERS)

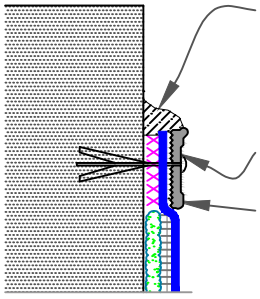
METAL COUNTER-FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

THREADED FASTENERS OR CARLISLE HP TERM BAR NAIL-IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 30 YEARS | **SEE INSET A**

9B MECHANICAL TERMINATION



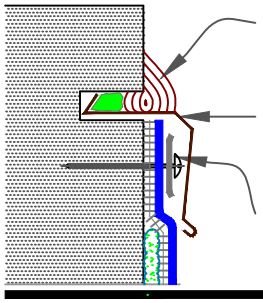
CARLISLE UNIVERSAL SINGLE-PLY SEALANT OR SEALANT (BY OTHERS)

CARLISLE HP TERM BAR NAIL-IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 20 YEARS | **SEE INSET A**

9C COUNTER FLASHING TERMINATION



CARLISLE UNIVERSAL SINGLE-PLY SEALANT OR SEALANT (BY OTHERS)

METAL COUNTER-FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

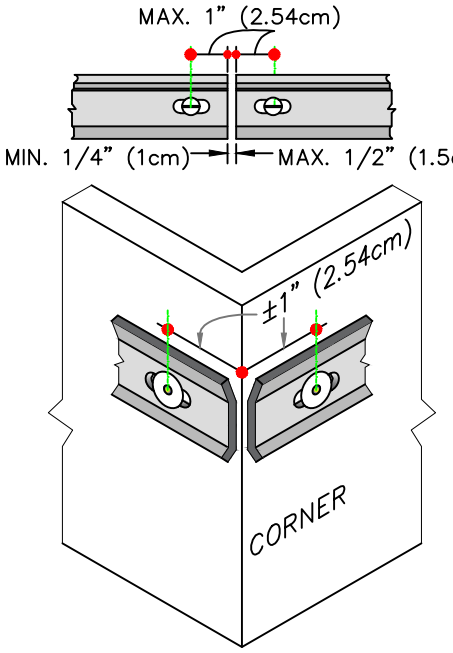
FASTEN MEMBRANE @ 12" (30cm) O.C. MAX. USE GALVANIZED WASHERS, MIN. 1", (2.54cm) DIAMETER

NOTE:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER-FLASHING, USE EPDM WASHERS, APPLY WATER CUT-OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.

WARRANTY UP TO 10 YEARS

INSET A



NOTES:

1. APPLY ON HARD SMOOTH SURFACE ONLY; NOT FOR USE ON EXPOSED WOOD.
2. DO NOT WRAP TERMINATION BAR AROUND CORNERS.
3. DETAIL 9D ON PAGE 2 OF 3 MUST BE USED AT VERTICAL JOINTS IN PANEL WALLS.

xxx WATER CUT-OFF MASTIC- MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
0 SEE NOTE(S)

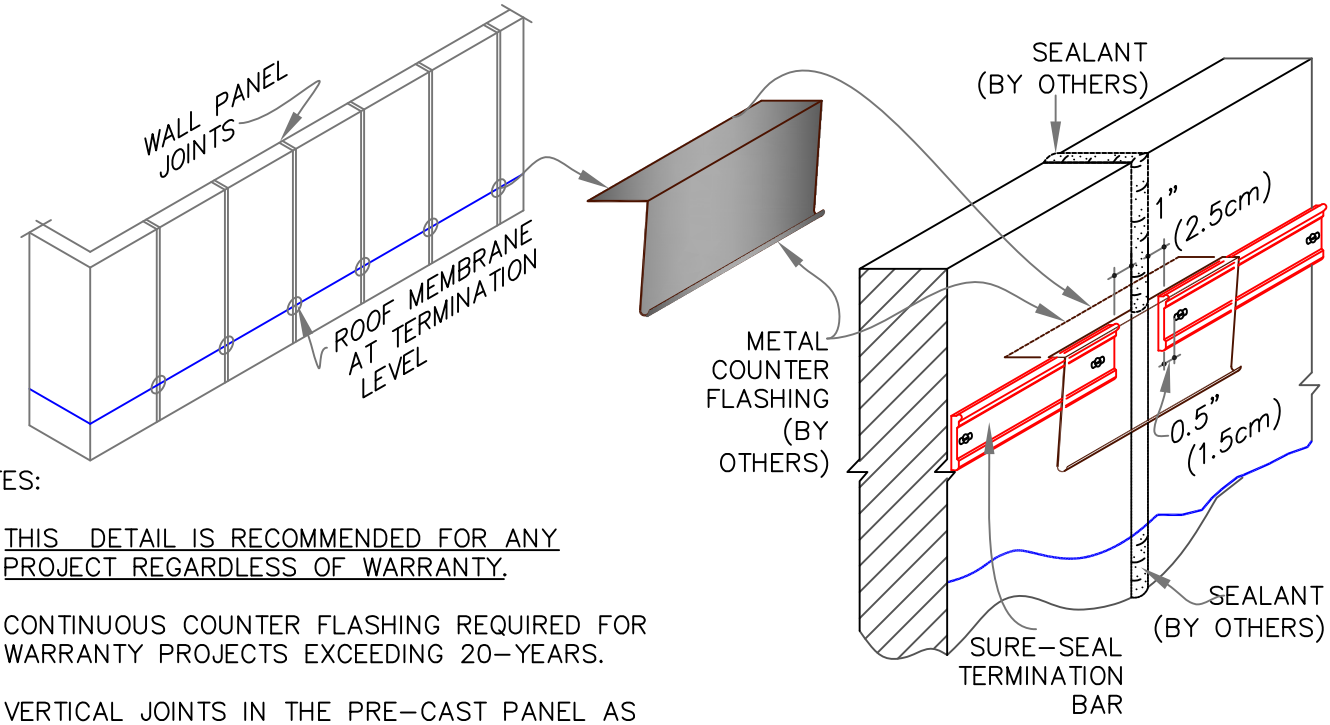
MEMBRANE TERMINATIONS (PAGE 1 OF 3)

WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB-9

FLEECEBACK ADHERED

9D MECHANICAL TERMINATION AT VERTICAL JOINTS



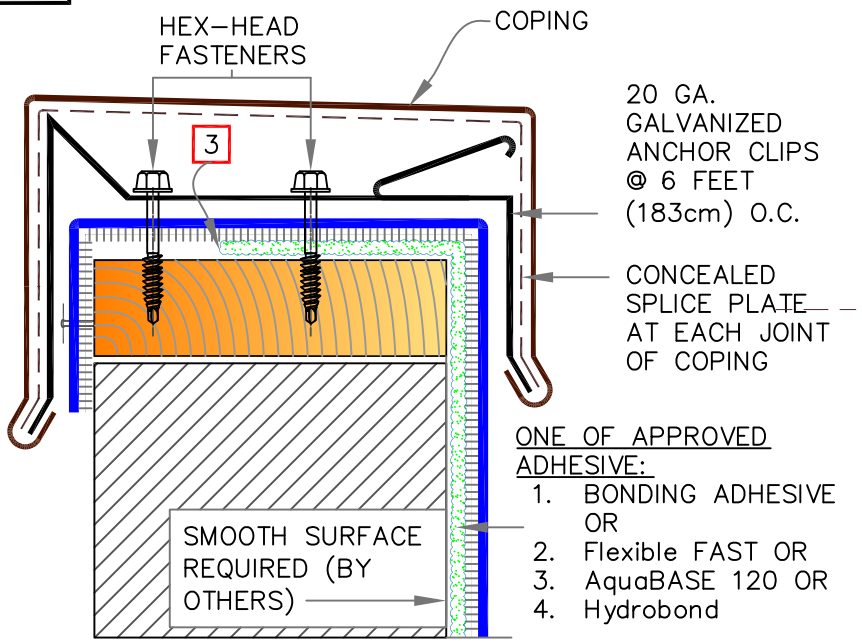
NOTES:

1. THIS DETAIL IS RECOMMENDED FOR ANY PROJECT REGARDLESS OF WARRANTY.
2. CONTINUOUS COUNTER FLASHING REQUIRED FOR WARRANTY PROJECTS EXCEEDING 20-YEARS.
3. VERTICAL JOINTS IN THE PRE-CAST PANEL AS WELL AS ALL GAPS AT THE JUNCTION OF THE TILT-UP PANEL AND ROOF DECK MUST BE FULLY SEALED TO PREVENT AIR INFILTRATION.
4. APPLY ON HARD SMOOTH SURFACE ONLY.

9E SecurEdge 200 & 300 COPINGS

NOTES:

1. MEMBRANE MUST BE EXTENDED AT CORNERS TO PROVIDE COMPLETE COVERAGE OF THE TOP WALL SURFACE. SEE 3D DETAIL 9F ON PAGE 3 OF 3.
2. REFER TO SecurEdge COPING INSTALLATION INSTRUCTION MANUAL FOR STEP-BY-STEP INSTRUCTION PROCEDURES.
3. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & TEMPORARILY SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

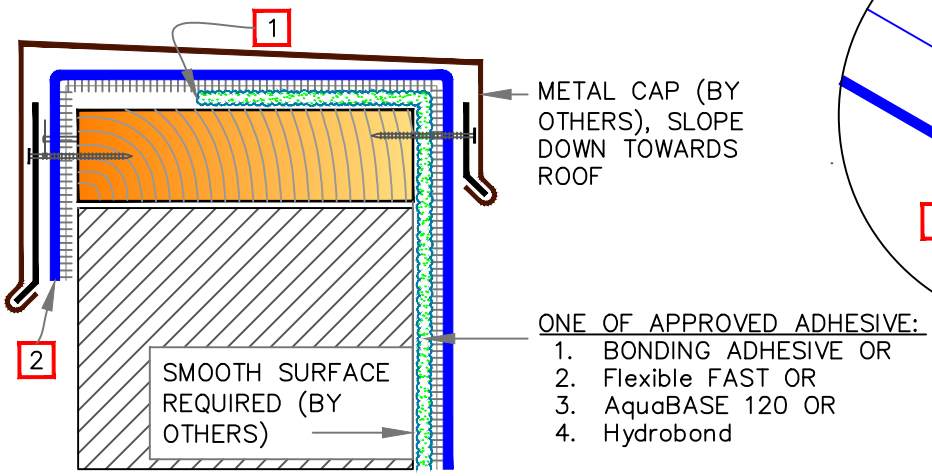
MEMBRANE TERMINATIONS (PAGE 2 OF 3)

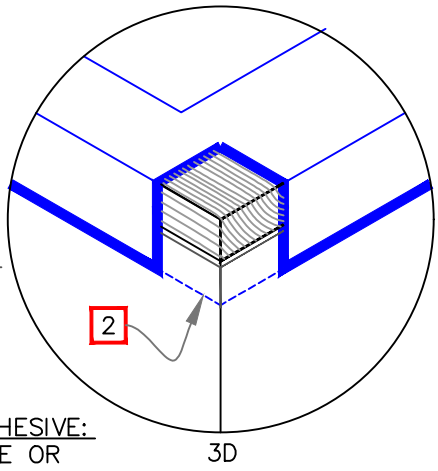
WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB-9

FLEECEBACK ADHERED

9F | SHEET METAL COPING (BY OTHERS)



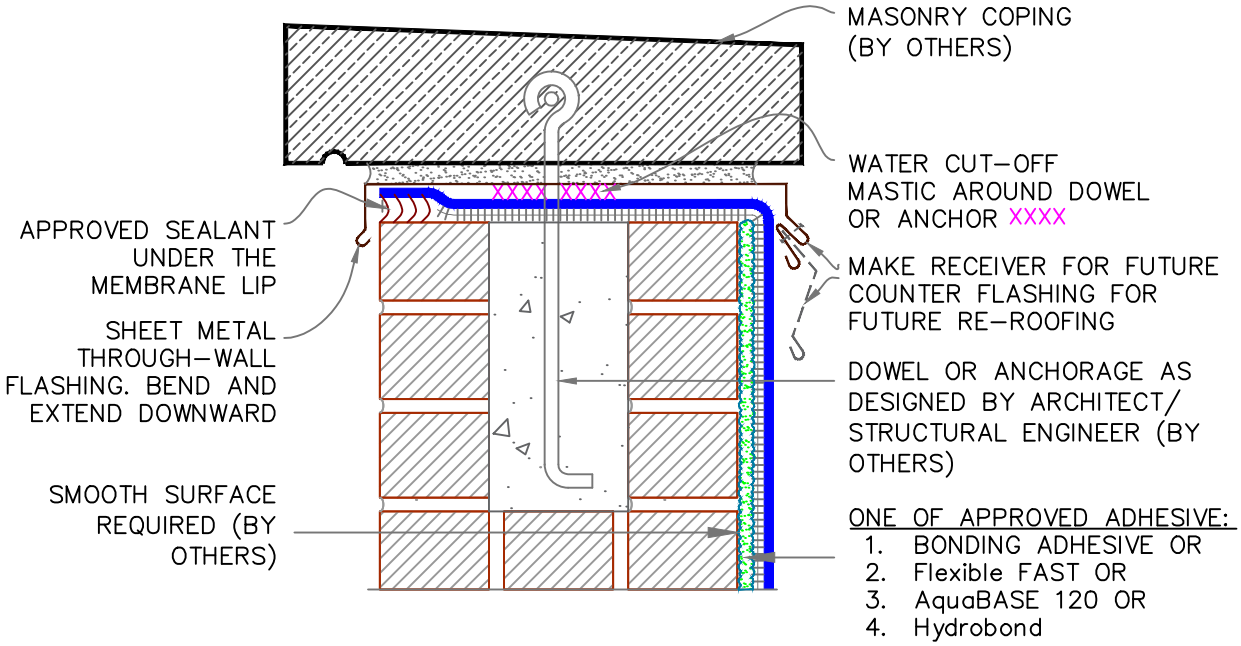


NOTES:

1. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.

2. EXTEND THE MEMBRANE BELOW THE JOINT. AT CORNERS, MEMBRANE MUST BE EXTENDED TO PROVIDE COMPLETE COVERAGE OF WALL SURFACE.

9G | MASONRY COPINGS (BY OTHERS)



XXX WATER CUT-OFF MASTIC- MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE APPROVED ADHESIVE APPROVED SUBSTRATE 0 SEE NOTE(S)	MEMBRANE TERMINATIONS (PAGE 3 OF 3) MAXIMUM WARRANTY: 30 YEARS	DETAIL NO. FB-9 FLEECEBACK ADHERED

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Carlisle SynTec Systems, a division of Carlisle Construction Materials LLC.
1285 Ritner Highway
Carlisle, PA 17013

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.
This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Carlisle Sure-Weld Single Ply TPO Roof Systems over Lightweight Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews NOA# 23-0410.08 and consists of pages 1 through 23.
The submitted documentation was reviewed by Alex Tigera.

08/15/24

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	TPO
Deck Type:	Lightweight Concrete Decks
Maximum Design Pressure	-492.5 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Sure-Weld FleeceBACK	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 100, 115 and 135 mils.
Sure-Weld AFX	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 120, 135 and 155-mils.
Sure-Weld	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thicknesses are 45 and 60-mils.
Sure-Weld EXTRA	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thickness is 80-mils.
Sure-Weld HS	various	TAS 131	Reinforced white or colored FR TPO membrane. Available sheet thicknesses are 45, 60 and 80-mils.
Sure-Weld SAT	Various	TAS 131	Self-Adhered Reinforced TPO Membrane. Available sheet thickness is 60-mil.
FAST 100 LV Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive
FAST Dual Cartridge Adhesive	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
FAST Bag in a Box Adhesive	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Flexible FAST Dual Cartridge	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Bag In A Box	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Sure-Weld Bonding Adhesive	5-gal. pail	TAS 110	Solvent-based bonding adhesive.
Aqua Base 120 Bonding Adhesive	5-gal. pail	TAS 110	Water-based bonding adhesive
Cold Applied Adhesive	5-gal. pail	TAS 110	Asphalt-modified Polyether adhesive

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Polyisocyanurate HP-H	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield HD Composite	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
H-Shield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-Shield CG	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-shield HD Composite CG	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Hunter Panels, a div of Carlisle construction Materials, LLC.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	HPX Fastener	Truss head, self-drilling, drill point, high thread fastener for use into steel and wood decks	#15 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
2.	InsulFast Fastener	Carbon steel fastener for use into steel and wood decks	#12 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
3.	Piranha Plate	Steel stress plate used with HPX Fastener for attachment of membrane	2-3/8 inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
4.	Insulation Fastening Plate	Galvalume plated steel stress plate with reinforcing ribs	3-inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
Atlantic & Caribbean Roof Consulting, LLC.	11-034	TAS 114 Appendix D	06/28/11
	11-035	TAS 114 Appendix D	06/28/11
	11-037	TAS 114 Appendix D	06/29/11
	15-002	TAS 114 Appendix D	03/30/15
	15-008	TAS 114 Appendix D	04/02/15
	15-009	TAS 114 Appendix D	04/06/15
	15-041	TAS 114 Appendix D	12/30/15
	15-043	TAS 114 Appendix D	01/04/16
Architectural Testing Inc.	ATI-37490.01	Membrane Brittleness Testing	7/7/00
Factory Mutual Research Corp.	3022174	Wind Uplift and Fire Classification	09/25/06
	3Z9A1.AM	Wind Uplift and Fire Classification	10/15/97
	1B7A5.AM	Wind Uplift and Fire Classification	02/23/98
	Approval Guide Excerpt	Wind Uplift and Fire Classifications Listings	5/00
	3011220	Class 4470	08/16/01
	3012879	Class 4470	04/04/03
Celotex Corporation Testing Services	520257	Membrane Physical Property Testing	4/19/00
SGS U.S. Testing Company Inc.	131248-R2	Membrane Ozone Resistance Testing	1/6/00
Trinity ERD	C46470.07.14-1A	TAS 131	07/16/14
	C46470.07.14-1B	TAS 131	07/16/14
	C46470.07.14-2A	TAS 131	07/30/14
	C46470.07.14-4-R1	TAS 131	07/21/14
	4r-CRL-20-SSTHP-.02.D	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.C	TAS 131	04/27/21
	4-CRL-18-002.04.18-2A	TAS 131	04/30/18
	4r-CRL-20-SSTHP-02.B.R2	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.A	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.03.A	TAS 131	04/27/21

DECK STRESS ANALYSIS CALCULATIONS/REPORTS

Engineer/Agency	Identifier	Assemblies:	Date
Randall Fowler P.E.	Letter	E(1), E(2)	04/30/15

APPROVED ASSEMBLIES

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(1): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied to the substrate only at a rate of 120 ft^2/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld AFX membrane adhered to the insulation Cold Applied Adhesive. The adhesive is applied to the substrate only at a rate of 67 ft²/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -340 psf (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(2): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel.
System Type E(1):	Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type E(2): Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete, Non-insulated, over Steel Deck

Deck Description: Celcore Cellular Lightweight Concrete, minimum 300 psi., over steel or structural concrete.

System Type F(1): Membrane adhered to lightweight concrete deck

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 18-22 ga. 33 ksi steel deck

Membrane: Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf. (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Celcore Lightweight Insulating Concrete, minimum 300 psi. over structural concrete.

System Type F(2): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -232.5 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-135 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-82.5 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi.over structural concrete.

System Type F(3): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-67.5 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-90 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(4): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(5): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(6): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(7): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(8): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(9): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(10): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.
System Type F(11):	Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck:	Minimum 2500 psi structural concrete.
Lightweight Concrete:	The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.
Membrane:	Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Maximum Design Pressure:	-217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over structural concrete.

System Type F(12): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 3000 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 250 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld SAT (Self-Adhered Technology) membrane fully adhered to the lightweight concrete. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -282.5 psf.; (See General Limitation #9)

LIGHTWEIGHT INSULATING CONCRETE SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.

3. For Systems where specific lightweight insulating concrete si referenced consult current lightweight insulating concrete NOA for specific deck construction and limitations. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
11. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE

Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

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INSTRUCTION PAGE

COMPLETE THE NECESSARY SECTIONS OF THE UNIFORM ROOFING PERMIT APPLICATION FORM AND ATTACH THE REQUIRED DOCUMENTS BELOW:

Roof System	Required Sections of the Permit Application Form	Attachments Required See List Below
Low Slope Application	A,B,C	1,2,3,4,5,6,7
Asphaltic Shingles	A,B,D	1,2,4,5,6,7
Concrete or Clay Tile	A,B,D,E	1,2,3,4,5,6,7
Metal Roofs	A,B,D	1,2,3,4,5,6,7
Wood Shingles and Shakes	A,B,D	1,2,4,5,6,7
Other	As Applicable	1,2,3,4,5,6,7

ATTACHMENTS REQUIRED:

1.	Fire Directory Listing Page
2.	From Product Approval: Front Page Specific System Description Specific System Limitations General Limitations Applicable Detail Drawings
3.	Design calculations per Chapter 16, or if applicable, RAS 127 or RAS 128
4.	Other Component Product Approval
5.	Municipal Permit Application
6.	Owner's Notification for Roofing Considerations (Reroofing Only)
7.	Any Required Roof Testing / Calculation Documentation

Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

Section A (General Information)

Master Permit Number: _____ Process Number: _____

Contractor's Name: Nations Roof Residential, LLC - Ian Alan Brenner

Job Address: 14001 NW 82 Ave Miami Lakes, FL 33016

ROOF CATEGORY

☑ Low Slope ☐ Mechanically Fastened Tile ☐ Mortar / Adhesive Set Tile

☐ Asphaltic Shingles ☐ Metal Panel/ Shingles ☐ Wood Shingles / Shakes

ROOF TYPE

☑ New Roof ☐ Repair ☐ Maintenance ☐ Reroofing ☐ Recovering

ROOF SYSTEM INFORMATION

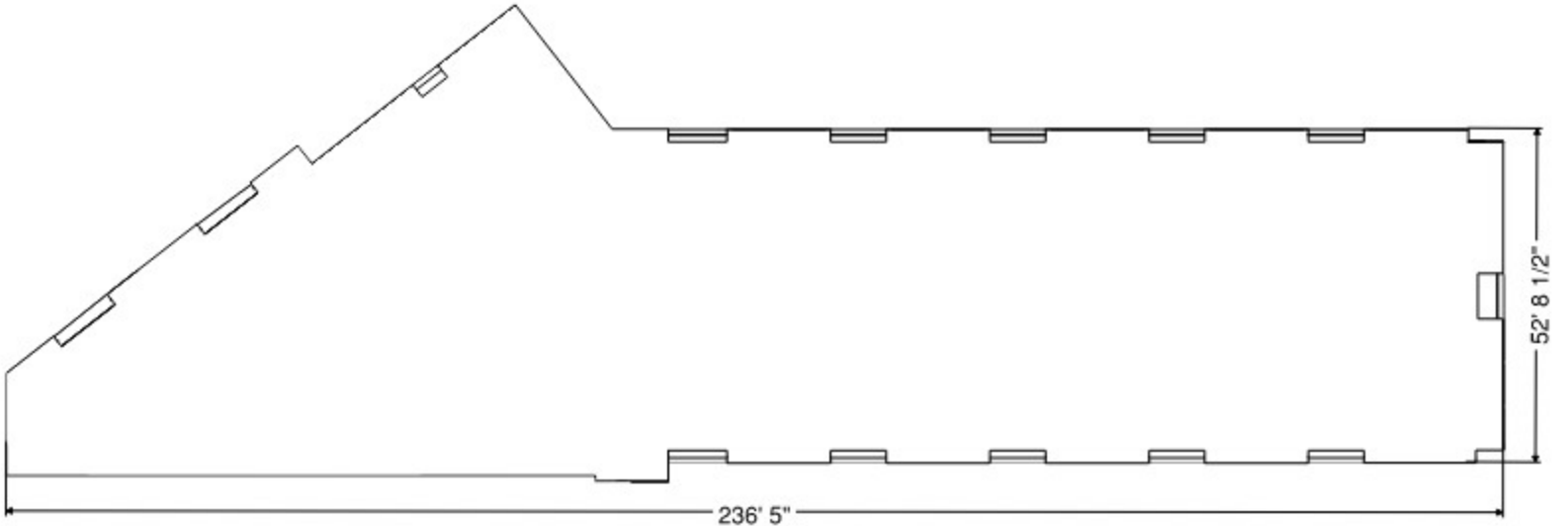
Low Slope Roof Area (ft^2)	Steep Sloped Roof Area (ft^2)	Total (ft^2)
	0	

Are there gas vents on the roof? ○ Yes ○ No If Yes what type? ○ Natural ○ LPX

Is there an existing roof top Solar System? ○ Yes ◉ No If yes will it be reinstalled? ○ Yes ◉ No

Section B (Roof Plan)

Sketch Roof Plan: Illustrate all levels and sections, roof drains, scuppers, overflow scuppers and overflow drains. Include dimensions of sections and levels, clearly identify dimensions of elevated pressure zones and location of parapets.



Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

Section C (Low Sloped Roof Systems)

Fill in Specific Roof Assembly Components and Identify manufacturer
(If a component is not used, identify as "NA")

System Manufacturer: Carlisle

Product Approval # NOA 24-0502.05

Design Wind Pressures, from RAS 128 or Calculations:

Zone 1': -56.0 Zone 1: -45.2 Zone 2: -67.8

Zone 3: -92

Max. Design Pressure, from the specific product approval system: -217.5

Deck Type: LWIC over Concret

Gauge / Thickness: N/A

Slope: .25/12 pitch

Anchor/ Base Sheet & No. of Ply(s): N/A

Anchor/ Base Sheet Fastener/ Bonding Material:
N/A

Insulation Base Layer: N/A

Base Insulation Size and Thickness: N/A

Base Insulation Fastener/ Bonding Material:
N/A

Top Insulation Layer: N/A

Top Insulation Size and Thickness: N/A

Top Insulation Fastener/Bonding Material:
N/A

Base Sheet(s) & No. of Ply(s): N/A

Base Sheet Fastener/ Bonding Material:
N/A

Ply Sheet(s) and No. of Ply(s): N/A

Ply Sheet Fastener/ Bonding Material:
N/A

Top Ply: Fleeceback 135mil

Top Ply Fastener/ Bonding Material:
Low Rise Adhesive

Surfacing:
Ribbons 4" OC

Fastener Spacing for Anchor/Base Sheet Attachment:

Zone 1' N/A " oc @ Laps, # Rows _____ @ _____ " oc

Zone 1 N/A " oc @ Laps, # Rows _____ @_____ " oc

Zone 2 N/A " oc @ Laps # Rows _____ @ _____ " oc

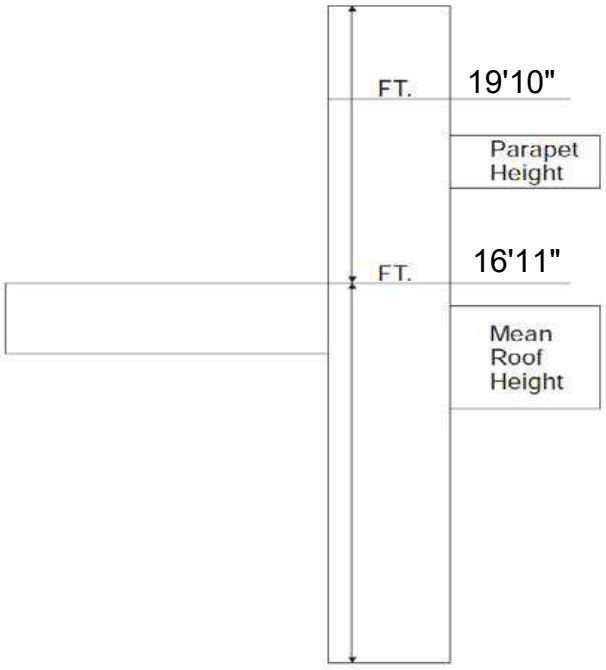
Zone 3 N/A " oc @ Laps, # Rows _____ @ _____" oc

Number of Fasteners Per Insulation Board

Zone 1': N/A Zone1: N/A Zone 2: N/A Zone 3: N/A

Illustrated Components Noted and Details as Applicable:
Woodblocking, Gutter, Edge Termination, Stripping, Flashing, Continuous Cleat, Cant Strip, Base Flashing, Counterflashing, Coping, Etc.

Indicate: Mean Roof Height, Parapet Height, Height Base Flashing, Component Material, Material Thickness, Fastener Type, Fastener Spacing or Submit Manufactures Details that Comply with RAS 111 and Chapter 16.



Florida Building Code 8th Edition (2023)

High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County

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Section D (Steep Sloped Roof System)

Roof System Manufacturer: _____

Product Control Number: _____

Minimum Design Wind Pressures, From Applicable RAS 127 Table or Calculation:

Zone1: _____ Zone 2: _____ Zone3: _____

Slope Range: ◯ ≥ 2:12 to ≤ 4:12 ◯ > 4:12 to ≤ 6:12 ◯ > 6:12 to ≤ 12:12

Roof Shape: ◯ All Hip Roof ◯ Gable Roof or Partial Gable/Hip Roof

Deck Type: _____

Underlayment Type: _____

Roof Slope: _____: 12

Insulation: _____

Fire Barrier: _____

Ridge Ventilation? _____

Fastener Type & Spacing: _____

Cap Sheet Type: _____

Mean Roof Height: _____

Cap Sheet Attachment: _____

Roof Covering: _____

Drip Edge Type & Size: _____

Florida Building Code 8th Edition (2023)
High Velocity Hurricane Zone Uniform Roofing Application Form for Miami-Dade County
Section E (Tile Calculations)

For Moment based tile systems, choose Method 1. Compare the values for M_r with the values from M_f. If the M_f values are greater than or equal to the M_r values for each area of the roof, then the tile attachment method is acceptable.

Method 1* " Moment Based Tile Calculations per RAS 127"
Enter positive uplift pressures when using this table

(Zone 1: _____ x λ _____ = _____) – Mg: _____ = Mr_1 _____ Product Approval Mf: _____

(Zone 2: _____ x λ _____ = _____) – Mg: _____ = Mr_{2e} _____ Product Approval Mf: _____

(Zone 3: _____ x λ _____ = _____) – Mg: _____ = Mr_{2n} _____ Product Approval Mf: _____

Tile attachment method:

Alternate Tile attachment method :

Method 2 "Simplified Tile Calculations" only applicable in Broward County.

For Uplift Based tile systems use Method 3. Compare the values for F' with the values for Fr. If the F' values are greater than or equal to the Fr values for each area of the roof, then the tile attachment method is acceptable.

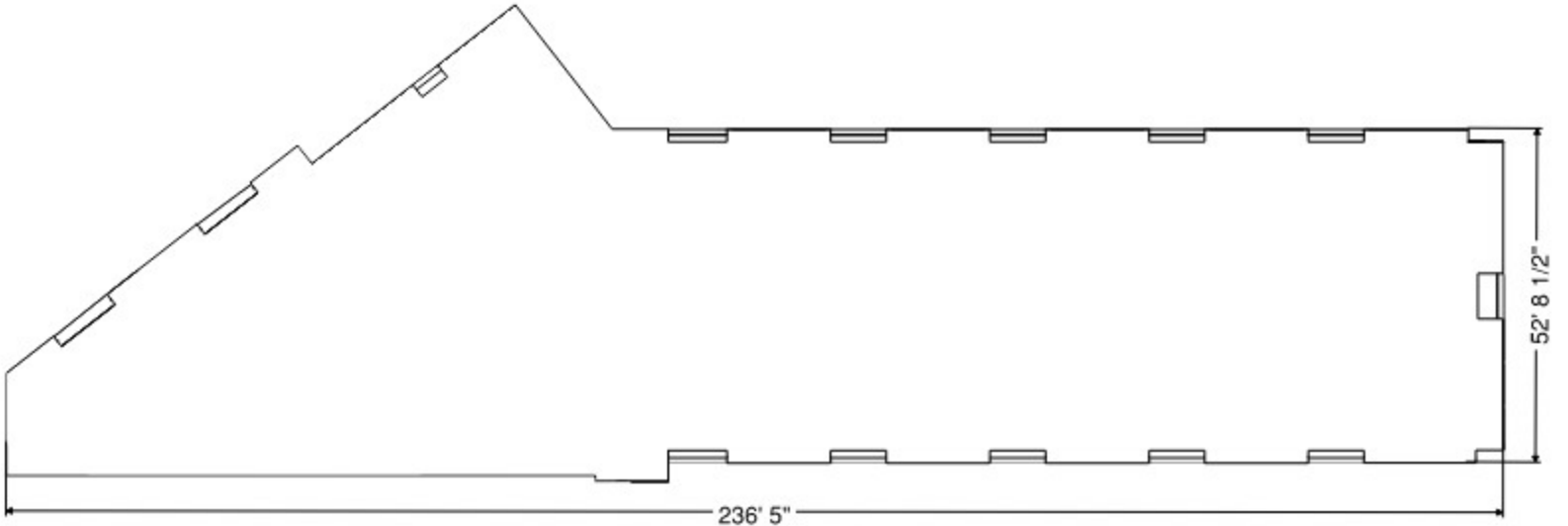
Method 3* "Uplift Based Tile Calculations per RAS 127"

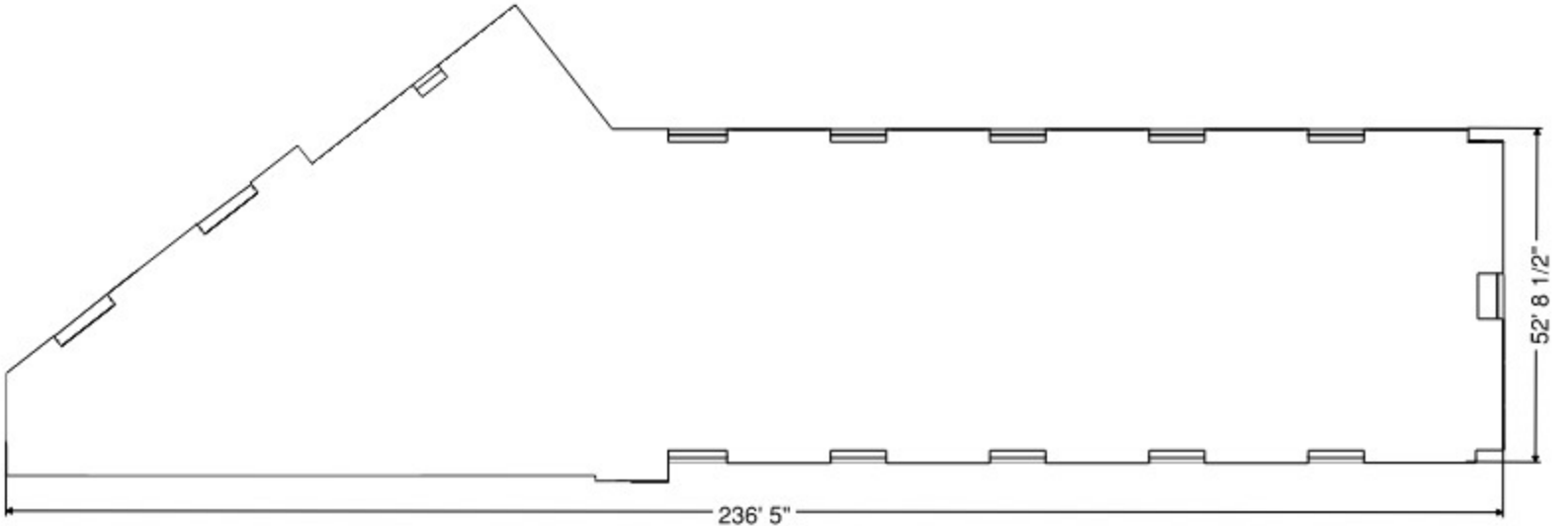
(Zone 1: _____ x L = _____ x W = _____) – (w) x cos θ _____) = Fr_1 _____ Product Approval F': _____

(Zone 2: _____ x L = _____ x W = _____) – (w) x cos θ _____) = Fr_2 _____ Product Approval F': _____

(Zone 3: _____ x L = _____ x W = _____) – (w) x cos θ _____) = Fr_3 _____ Product Approval F': _____

Where to obtain information		
Description	**Symbol**	**Where to Find**
Design Pressure	Zones 1, 2, & 3	From the applicable Table in RAS- 127 or by an engineering analysis prepared by a PE based upon ASCE 7
Mean Roof Height	H	Job Site
Roof Slope	θ	Job Site
Aerodynamic Multiplier	λ	Product Approval / Notice of Acceptance
Restoring Moment due to Gravity	M_g	Product Approval / Notice of Acceptance
Attachment Resistance	M_f	Product Approval / Notice of Acceptance
Required Moment Resistance	M_r	Calculated
Minimum Attachment Resistance	F'	Product Approval / Notice of Acceptance
Required Uplift Resistance	F_r	Calculated
Average Tile Weight	w	Product Approval / Notice of Acceptance
Tile Dimensions	L=Length W= Width	Product Approval / Notice of Acceptance
All calculations must be submitted to the Building Official at the time of permit application.		





Nationwide Locations
Locally Served

Corporate Headquarters:
7700 Congress Avenue
Suite 1119
Boca Raton, FL 33487

Limited Building Material Survey for the Presence of Asbestos

Project Name & Location:
Select Medical Miami Lakes
14001 Northwest 82nd Avenue
Miami Lakes, FL 33016

Prepared For:
Gerritts Construction inc.
8177 Glades Road, Suite 206
Boca Raton, FL 33434

Date: 9/13/24

Table of Contents

1.0 Executive Summary

AirMD is providing results to the client for the above-referenced project. AirMD's objective was to conduct a limited building material survey for the presence of asbestos. The project was requested because of proposed building material disturbance activities in certain areas of the property. A site assessment and sampling were completed on September 11 2024. The site visit assessed the visible accessible areas of the property that were agreed with the client and samples were collected. The information provided in this report is based upon the agreed scope relative to the reported issue(s)/claim and include the ICU wing.

The purpose of the limited building material survey was to locate and identify Asbestos Containing Materials (ACM) within the building materials prior to building material disturbance activities. Samples of visible accessible suspect Asbestos Containing Building Materials (ACBM) were collected for analysis by Polarized Light Microscopy (PLM).

From the site assessment, sampling and laboratory analysis, asbestos was not present in any of the samples collected from the site.

Note, sampling of building materials was limited to the visible accessible areas of the property that will undergo building material disturbance as reported by the client. Hidden and inaccessible areas are not part of this building material survey. If any materials are encountered during disturbance activities that were not sampled in this report, the materials should not be disturbed until they have been sampled and identified as non-ACM through laboratory analysis. In the event these materials are accidentally disturbed, stop work, turn off all ventilation, cover the materials, and contact AirMD for further direction.

2.0 Introduction

Asbestos is a heat resistant, naturally occurring mineral fiber. It is commonly used in many building and construction materials. All demolition and renovation construction projects are subject to the U.S. Environmental Protection Agency (EPA) Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP).

Prior to renovation, demolition, or removal of material in a building, it must be determined if and how much asbestos is present at the site. This federal regulation is applicable, regardless of the age of the building or building material type, in all commercial properties, residential structures with five dwelling units or more (ex. condos, apartments), schools and residential properties that have been or will be converted into commercial space. The Asbestos NESHAP does not apply to residential structures with four or fewer dwellings (i.e., apartments or single-family homes) if they are not part of a larger project. Some examples of the parties legally responsible for ensuring that an asbestos survey is completed prior to renovation, demolition, or removal of material in a building include the property owner, condominium or Co-op board members, contractor and operator of the demolition or renovation project.

The subject property is a hospital. The client reported that work resulting in the disturbance of building materials will occur in some areas of the building. As a result, AirMD conducted a limited building material survey for the presence of asbestos prior to disturbance/removal activities. The survey involves following the path of disturbance where building materials will be removed and/or disturbed as part of the construction work that will be completed. The reported areas for building material disturbance include the ICU wing. The entire property was not inspected. Inspection was limited to areas that will be potentially disturbed during the proposed work.

The purpose of the report is to detail the findings from the asbestos survey. It is very important that the necessary time be taken to read the report in its entirety.

3.0 Methodology

AirMD performed the following scope of work based upon discussions with the client(s) which included the following:

- Walkthrough of the applicable areas and a visual assessment of the accessible areas identifying all relevant building materials and finishes.

- Bulk sample collection of suspect ACM.

- Sample submission under chain of custody for analysis using Polarized Light Microscopy (PLM) in conjunction with dispersion staining as outlined in 40 CFR, Part 63, Subpart F dated January 1987. Analysis was conducted by Eurofins Built Environment Testing in Fort Lauderdale, FL, which is accredited for asbestos fiber analysis through successful participation in the National Voluntary Laboratory Accreditation Program (NVLAP) and meets the requirements of section 206(d) of Title II of the USC Chapter 15, TSCA as stated in 40 CFR 763 dated April 30, 1987.

- Laboratory results assessment and interpretation.

- Report Preparation.

Bulk material sampling was conducted according to the following sampling plan:

Friable Surfacing Materials: Surfacing material is anything that is sprayed or troweled onto a surface. Friable surfacing materials, where encountered, are sampled based on the recommendations found in the EPA "Pink Book" entitled "Asbestos in Buildings: Simplified Scheme for Friable Surfacing Materials" (EPA document 560/5-85-030a). The number of samples collected is based on the total square footage of the homogenous area of the material and the material types.

Thermal System Insulation (TSI): Thermal system insulation is material used to insulate heating, ventilation and air conditioning pipes, tanks, and other building components. If present, samples are collected in a randomly distributed manner from each homogeneous area of TSI not assumed to be ACM. Samples are collected from each homogeneous area of patched TSI. Where cement or plaster is used on fittings such as tees, elbows, or valves, samples will be collected in such a manner sufficient to determine whether the material is ACM or not ACM.

Miscellaneous Materials: Miscellaneous materials are any other type of material that does not fall into the two categories above. This includes materials such as acoustical ceiling tiles, floor tiles and linoleum, wallboard, wire insulation, caulking sealants, draperies, etc. Suspected miscellaneous materials will be sampled in such a manner as to determine whether they contain asbestos or not. The number of samples collected of a given miscellaneous material will be left to the discretion of the inspector. A homogeneous area is defined as an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture. Homogeneous areas may be one room or location but also may be widespread in multiple rooms, areas of locations in a building. For this project, samples were determined by identifying the homogeneous areas and basing sampling locations upon these areas.

The non-suspect materials that were present included:
1) Glass
2) Metal

Note, if any materials are encountered during disturbance activities that were not sampled in this report, the materials should not be disturbed until they have been sampled and identified as non-ACM through laboratory analysis.

4.0 Results

Suspected asbestos-containing materials that were present are listed below. Specific information regarding material type and number of samples collected are listed on the physical assessment form and chain of custody:

1 Wall Materials: Interior wall materials consisted of drywall and compound system. Samples of the materials were collected, and asbestos was not detected in the materials.

2 Ceiling Materials: Interior ceiling materials consisted of acoustical ceiling tiles. Samples of the materials were collected, and asbestos was not detected in the materials.

3 *Floor Materials:* Floor materials consisted of vinyl flooring. Samples of the materials were collected, and asbestos was not detected in the materials.

4 Miscellaneous Materials: Miscellaneous materials consisted of caulking. Samples of the materials were collected, and asbestos was not detected in the materials.

The integrity of the data was supported by the quality control duplicate sample results.

5.0 Assessments of ACM

The above sampled materials are defined by the EPA-NESHAP regulation as non-asbestos containing materials; therefore, no assessment or abatement of the material is required.

6.0 Closing Remarks

Federal Law Section 61.145(c) of the Asbestos NESHAP requires that the local EPA representative's office be notified in writing at least 10 working days prior to the onset of the project. A notice of demolition or asbestos renovation must be completed, and the documentation can be obtained from:

https://floridadep.gov/air/permitting-compliance/forms/notice-demolition-or-asbestos-renovation

The Miami-Dade County Division of Environmental Resources Management can be contacted at 305-372-6925.

Limitations: AirMD was retained to perform a limited assessment in the building for asbestos containing building materials related to the proposed renovation areas only. Limited destructive testing is performed during a survey and the search is based on the limited areas accessible at the time of our visit and does not include materials that cannot be accessed. Our selection of sample locations and frequency is based upon our observations and the assumption that materials in the same area are homogeneous. As there are thousands of different building products recognized as asbestos-containing building materials, with the possibility of their presence on the project site, it cannot be conclusively stated that all have or could be identified.

AirMD's interpretations are limited to accessibility and instrumentation limitations. The purpose of this inspection was to identify asbestos-containing materials that may require special treatment prior to proceeding with the planned disturbance/renovation operation only. Because this inspection was conducted prior to a planned renovation operation, only those suspect asbestos-containing materials expected to be disturbed because of the disturbance activities were sampled and submitted to the laboratory for asbestos content. This inspection does not intend to have identified all the asbestos-containing materials present in the building.

The findings documented in the report are based on information available at the time of assessment and are limited to the work scope and areas covered under the work scope. Other areas of the building may differ to those assessed locations as part of this work scope and may differ and are not considered. AirMD's assessments and results do not claim or guarantee that all potential hazards and contaminants were assessed for. AirMD does not provide an opinion on whether the building is habitable, safe or provide a medical opinion between the relationship of potential health effects with any reported hazards and/or contaminants.

AirMD's opinions as noted in the report are based on the findings and upon our professional experience with no warranty or guarantee implied. AirMD accepts no responsibility for interpretations or actions based on this report by others. The findings, results and conclusions as part of our assessment are only representative of conditions at the time of the AirMD visit and do not represent conditions at other times. This report is intended for your use and your assigned representatives. Its data and content shall not be used or relied upon by other parties without prior written authorization of AirMD. Should additional information become available, we reserve the right to determine the impact, if any, of the new information on our opinions, conclusions, and recommendations, if necessary, as warranted by the discovery of the additional information.

AirMD used its best professional judgment and followed industry standards in completing the project. This report was prepared in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. The results are valid at the time of sample collection and do not guarantee that conditions in the future will not cause changes.

Sincerely,

Vincent Mendez

Vincent Mendez
Certified Asbestos Inspector
Expiration date: 6/12/25
AirMD, Inc.
Florida Licensed Asbestos
Consulting Firm ZA429

Reviewed By:

Scott Russell
Florida Licensed Asbestos
Consultant AX66

Appendix A

Laboratory Results

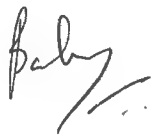
eurofins | Built Environment Testing

Report for:

Simon Hahessy
AirMD
7700 Congress Ave Ste 1119
Boca Raton, FL 33487

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: 2402703- VM; Select Medical Miami Lakes
EML ID: 3778729

Approved by:



Approved Signatory
Balu Krishnan

Dates of Analysis:
Asbestos PLM: 09-13-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200738-0

Eurofins EPK Built Environment Testing, LLC
6340 NW 5th Way, Ft. Lauderdale, FL 33309
(866) 871-1984 www.eurofinsus.com/Built

Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	19
Total Samples Analyzed:	19
Total Samples with Layer Asbestos Content > 1%:	0

Location: DW1, Drywall/ Compound Lab ID-Version‡: 18628098-1

Sample Layers	Asbestos Content
White Joint Compound with Paint 1	ND
White Joint Compound with Paint 2	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: DW2, Drywall/ Compound Lab ID-Version‡: 18628099-1

Sample Layers	Asbestos Content
White Joint Compound with Paint	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: DW3, Drywall/ Compound Lab ID-Version‡: 18628100-1

Sample Layers	Asbestos Content
White Joint Compound with Paint 1	ND
White Joint Compound with Paint 2	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: FT1, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628101-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: FT2, Vinyl Floor/ Mastic Lab ID-Version‡: 18628102-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: FT3, Vinyl Floor/ Mastic Lab ID-Version‡: 18628103-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ACT1, Acoustic Ceiling Tile Lab ID-Version‡: 18628104-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 10% Mineral Wool
Sample Composite Homogeneity:	Good

Location: ACT2, Acoustic Ceiling Tile Lab ID-Version‡: 18628105-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 10% Mineral Wool
Sample Composite Homogeneity:	Good

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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(866) 871-1984 www.eurofinsus.com/Built

Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: ACT3, Acoustic Ceiling Tile Lab ID-Version‡: 18628106-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 10% Mineral Wool
Sample Composite Homogeneity:	Good

Location: CA1, Caulk Lab ID-Version‡: 18628107-1

Sample Layers	Asbestos Content
Beige Caulk	ND
Sample Composite Homogeneity:	Good

Location: CA2, Caulk Lab ID-Version‡: 18628108-1

Sample Layers	Asbestos Content
Beige Caulk	ND
Sample Composite Homogeneity:	Good

Location: CA3, Caulk Lab ID-Version‡: 18628109-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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(866) 871-1984 www.eurofinsus.com/Built

Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: CA4, Caulk Lab ID-Version‡: 18628110-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: CT1, Concrete Lab ID-Version‡: 18628111-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: CT2, Concrete Lab ID-Version‡: 18628112-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: CT3, Concrete Lab ID-Version‡: 18628113-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Client: AirMD
C/O: Simon Hahessy
Re: 2402703- VM; Select Medical Miami Lakes

Date of Sampling: 09-11-2024
Date of Receipt: 09-12-2024
Date of Report: 09-13-2024

ASBESTOS PLM REPORT

Location: V1, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628114-1

Sample Layers	Asbestos Content
White Sheet Flooring	ND
Yellow Mastic	ND
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: V2, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628115-1

Sample Layers	Asbestos Content
White Sheet Flooring	ND
Yellow Mastic	ND
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: V3, Vinyl Floor/ Mastic

Lab ID-Version‡: 18628116-1

Sample Layers	Asbestos Content
White Sheet Flooring	ND
Yellow Mastic	ND
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

www.eurofinsus.com/Built

Built Environment Testing

East: (866) 871-1984
Central (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

Non-Cu

Spore Trap | S

003778729

ther Requests

CONTACT INFORMATION

Company:	AirMD	Address: 7700 Congress Ave Suite 1119 Boca Raton, FL 33487	
Contact:		Special Instructions:	
Phone:	561-245-4500		

PROJECT INFORMATION

Project ID:	2402703-VM		
Project Description:	Select Medical Miami Lakes		
Project Zip Code:	33016	Sampling Date/Time:	9/11/24 9:00AM
PO Number:		Sampled By:	Vincent Mendez

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + *Asp.* spp.)	Culturable Air Fungi (Genus ID + *Asp.* spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	*Legionella* culture	Total Coliform, *E.coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
DW1	Drywall/compound	B	STD															X				
DW2	↓																	X				
DW3	↓																	X				
FT1	Vinyl Floor/ Mastic																	X				
FT2	↓																	X				
FT3	↓																	X				
ACT1	Acoustic Ceiling tile																	X				
ACT2	↓																	X				
ACT3	↓																	X				
CA1	Caulk																	X				
CA2	↓																	X				
CA3	↓																	X				
CA4	↓																	X				

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
	9/11/24 12:00pm

RECEIVED BY	DATE & TIME
JS	9/12/24
	9:50

CHAIN OF CUSTODY

eurofins | Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003778729

CONTACT INFORMATION

Company:	AirMD	Address: 7700 Congress Ave Suite 1119 Boca Raton, FL 33487	
Contact:		Special Instructions:	
Phone:	561-245-4500		

PROJECT INFORMATION

Project ID:	2402703-VM		
Project Description:	Select Medical Miami Lakes		
Project Zip Code:	33016	Sampling Date/Time:	9/11/24 9:00 AM
PO Number:		Sampled By:	Vincent Mendez

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
CT1	Concrete	B	STD		
CT2	↓	↓	↓		
CT3					
V1	Vinyl floor/mastic				
V2	↓				
V3					

Non-Culturabl

Spore Trap Analysis	Other biological particles - supplement	Tape, Swab, B	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacte	*Legionella* culture	Total Coliform, *E.coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
													X	X			
													X	X			
													X	X			

Requests

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
	9/11/24 12:00PM

RECEIVED BY	DATE & TIME
JJ	9/12/24
	9:50

By submitting this COC, you agree to the terms and conditions set forth at http://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-cocs-and-terms-conditions

Appendix B

Assessment Form

Physical Assessment of Suspect Containing Building Materials

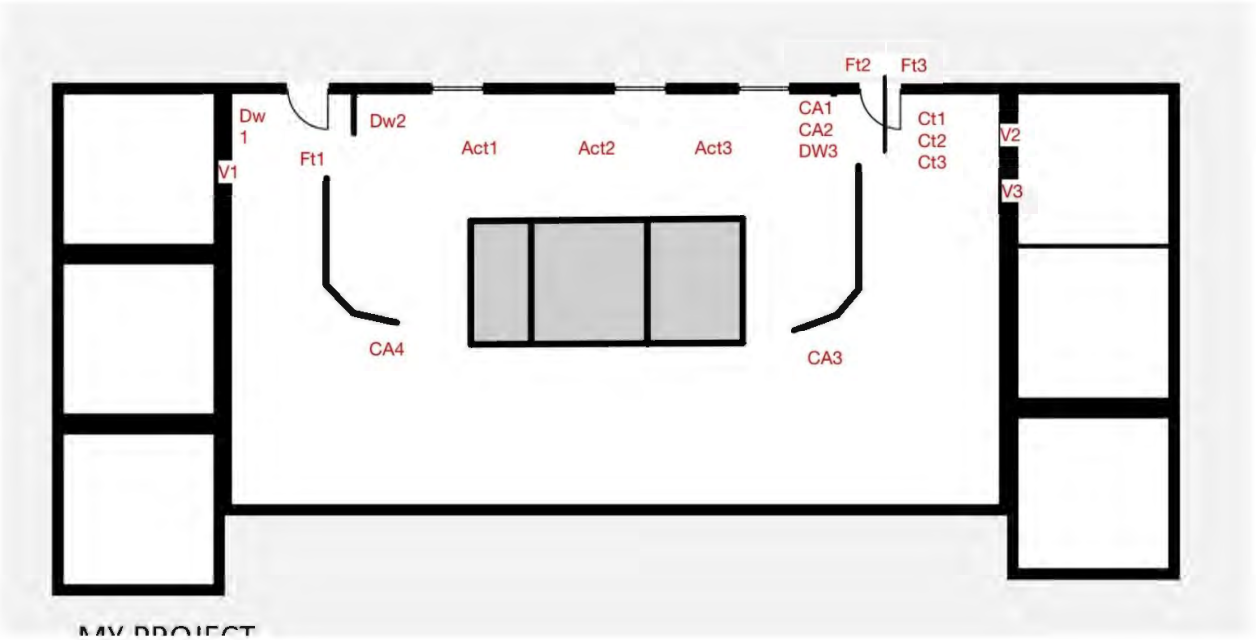
Date: 9/13/2024
Project Number: 2402703
Project Address: 14001 Nw 82nd Avenue Miami Lakes, FL 33016
Structure Type: Commercial
Project Type: Renovation
Total Square Footage: 1,500
Inspector Name: Vincent Mendez

Legend: Y:Yes N:No G:Good F:Fair P:Poor H:High M:Moderate L:Light

Potential ACM	Locations	ft²	ACBM Category	Friable	% Damage	Condition	Contact	Vibration	Air	Water	Damage Rating
Drywall/Compound/Tape	ICU wing	800	Misc	Y	0	G	H	H	H	L	6
Vinyl Floor/Mastic	ICU wing	500	Misc	N	0	G	H	H	H	L	6
Acoustic Ceiling tiles	ICU wing	500	Misc	Y	0	G	L	H	H	L	6
Caulking	ICU wing	50 LF	Misc	N	0	G	H	H	H	L	6
Concrete	ICU wing	500	misc	N	0	G	L	H	L	L	6

Appendix C

Sample Plan



Appendix D

Photo Documentation

Appendix E

Licenses and Certifications

Asbestos Consulting & Training Systems

2835 N.W. 12TH Avenue, Fort Lauderdale, Florida 33311

This is to Certify that

Vincent Mendez

XXX-XX-7942

8901 SW 186th Terrace, Miami, FL 33157

has successfully completed an English

AHERA Building Inspector Course

10-Jun-24 TO 12-Jun-24

and has completed the requisite training for TSCA

Meets state requirements of FL49-0001020/CN-0006272 and UT(6.0 core).

NDAAC Provider #451 Trainer(s): James F. Stump

Training Address: 2835 NW 12th Ave, Wilton Manors, Fl 33311

Successful course completion based on exam score on: 06/12/24

This Certificate Expires:

12-Jun-25 06/12/25

Processed By:

Seagull

To Authenticate Certificate

www.seagulltraining.com

1-800-966-9933

UNDER CIVIL AND CRIMINAL PENALTIES OF LAW FOR MAKING OR SUBMISSION OF FALSE OR FRAUDULENT STATEMENTS OR REPRESENTATIONS (18 U.S.C. 1001 AND 15 U.S.C. 2615), I CERTIFY THAT THIS TRAINING COMPLIES WITH ALL THE REQUIREMENTS PURSUANT TO TITLE IV OF THE TOXIC SUBSTANCES CONTROL ACT, AS AMENDED, IN PART 745 OR 763 OF ANY OTHER APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS, AS APPLICABLE.

James F. Stump, Course Sponsor

Certificate Number: 195684

Course Number: SE2425

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT

THE ASBESTOS CONSULTANT HEREIN IS LICENSED UNDER THE
PROVISIONS OF CHAPTER 469, FLORIDA STATUTES

RUSSELL, SCOTT A

ENVIRONMENTAL SAFETY CONSULTANTS INC
6400 MANATEE AVE W SUITE C
BRADENTON FL 34209

LICENSE NUMBER: AX66

EXPIRATION DATE: NOVEMBER 30, 2024

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Ron DeSantis, Governor

Melanie S. Griffin, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT

THE ASBESTOS BUSINESS ORGANIZATION HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 469, FLORIDA STATUTES

AIRMD

SCOTT A RUSSELL
7700 CONGRESS AVE STE 1119
BOCA RATON FL 33487

LICENSE NUMBER: ZA429

EXPIRATION DATE: NOVEMBER 30, 2025

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ISSUED: 11/13/2023

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MAY

1175 Peachtree Street NE
Colony Square Building 100
Suite 1800
Atlanta, GA 30361
404 614 0700
www.mayarchitecture.com

Submittal Review

May Architecture Response:

-Color: White

-Thickness: 135 mil (including fleece backing)

-Warranty: Submit the remaining required roof system warranty documentation per Specification 07 54 23, Article 1.12, for record. The warranty must include:

1. A minimum 30-year warranty period, as specified

2. Coverage for wind speed resistance per project requirements

3. Full coverage of labor, materials, and workmanship provided by the installer

Approved as noted

Submit other outstanding warranty documentations for record.

Reviewed by: Rianna Wah

Date: 07/01/2025

May Architecture

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for quantities; dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with the Contract Documents.

General Review Comments

Note: The following list may not comprise all of the submittal review comments. At times a graphic marking on the submittal is required to convey a comment. Therefore, refer also to the submittal itself for possible additional comments. The above comments plus any on the submittal itself comprise the comments related to this review.

Gerrits Construction

8177 Glades Rd, Suite 206
Boca Raton, FL 33481-0813
Telephone (561) 477-3553
Fax (561) 477-0876

Submittal cover page

To: May Architecture & Interior	**Project No:**
ATTN: Joseph Okelarin & Todd Combs	**Date:** 6.18.2025
CC: Bill Alexander & Sarah Wagner	**Re:**

WE ARE SENDING THE FOLLOWING INFORMATION:

☒ ATTACHED EMAIL ☐ BY MAIL ☐ BY EXPRESS ☐ BY HAND ☒ SHOP DRAWINGS ☐ PRINTS ☐ PLANS
☐ SAMPLES ☐ SPECIFICATIONS ☐ COPY OF LETTER ☐ CHANGE ORDER ☒ MANUF. DATA

COPIES	DATE	#	DESCRIPTION
1	6/18/25	2413-109-1.2-075423	Revised TPO Thermoplastic Roofing

REMARKS:

☒ For approval ☒ Urgent ☐ For your use ☐ Reply ASAP ☐ Please comment

Date Reviewed: 6.18.2025

Submittal No.: 2413-109-1.2-075423

Review of this shop drawing is limited to general design requirements of the contract documents and the general compliance therewith. This review does not relieve the subcontractor / supplier / manufacturer ("Offeror") of the responsibility for compliance with the contract documents, subcontract agreement / purchase order, and applicable codes. Verification of all actual dimensions, field conditions, and coordination with other trades is the sole responsibility of the offeror(s).

(✓) Acceptance Recommended
( ) Acceptance Recommended as Noted
( ) Other – Please Advise if Acceptable
( ) Revise and Resubmit
( ) Rejected

By: JP

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Roof Hatches

Every BILCO product is designed to operate to the customer's satisfaction and to provide years of trouble-free service. Should a part fail to function in normal use within a period of five (5) years from the date of purchase, a new part will be furnished at no charge. Electric motors, special finishes, and other special equipment (if applicable) shall be warranted separately by the manufacturers of those products.

an AmesburyTruth company

WARRANTY REGISTRATION

UL Product iQ®

Note: We are enhancing our systems and you may notice duplicate entries/missing/outdated data. During this interim period, please contact our Customer Service at https://www.ul.com/about/locations.

Roofing Systems

COMPANY

Carlisle SynTec Systems, a division of Carlisle Construction Materials, LLC
1295 RITNER HWY
CARLISLE, PA 17013-0925 United States

R8103

SINGLE PLY MEMBRANE SYSTEMS

Any roof covering system listed for use over a combustible roof deck can be installed over a non-combustible roof deck and achieve the same classification.

In the fully adhered and mechanically fastened systems described below, the "Sure-Seal EPDM" membrane coated with "EM-8 Hypalon" coating at 2/3-gal/100-ft.^{2} and dry silica sand (35-lbs/100-ft.^{2}) may replace the "Sure-Seal FR EPDM" or "Sure-Seal FR-PLUS EPDM" membrane.

When a classification does not require a Hypalon or Hypalon and sand coating, the classification of any EPDM roof covering system is retained when surfaced with 1 or 2 coats of "EM-8 Hypalon" coating using of coverage rate of 2/3-gal/100-ft.^{2}/coat limited to maximum inline of 3-1/2:12.

Unless otherwise indicated, when referring to gypsum board in the following classifications, the following will be referenced: Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard", 1/4 in. thick minimum, United States Gypsum Co. "SECUROCK Glass-Mat Roof Board" (Type SGMRX) or "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G), 1/4 in. thick minimum, Regular gypsum board (not Classified) laid with staggered joints (minimum 6-in. offset) measuring 0.463-in. thick minimum and weighing 184-lbs/100-ft.^{2} minimum or Georgia Pacific "Sound Deadening" Board, measuring 0.208-in. thick minimum and weighing 109-lbs/100-ft.^{2} minimum. 1/4 in. (minimum) United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 3:12 when used as a thermal barrier over a combustible roof deck in a system with any UL Classified insulation except polystyrene. Minimum 1/2 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 1:12 when used as a thermal barrier over a combustible roof deck in a system without insulation or with any UL Classified polystyrene insulation.

Minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard", minimum 1/4 in. thick Owens Corning "Strataguard", minimum 1/4 in. thick United States Gypsum Co. "SECUROCK Glass-Mat Roof Board" (Type SGMRX) or "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) or regular gypsum board may replace "HP Recovery Board" in any existing noncombustible roof deck Classification. When this is done, the resulting roof covering system is acceptable for use over combustible (15/32 in. minimum) roof decks. The joints in the gypsum board are offset 6-in. with the joints in the roof deck. 1/4 in. (minimum) United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 3:12 when used over a combustible roof deck in a system with any UL Classified insulation except polystyrene. Minimum 1/2 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 1:12 when used over a combustible roof deck in a system without insulation or with any UL Classified polystyrene insulation.

Minimum 1/2 in. thick gypsum board, minimum 1/4 in. thick Owens Corning "Strataguard", minimum 1/4 in. thick United States Gypsum Co. "SECUROCK Glass-Mat Roof Board" (Type SGMRX) or "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) or minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" may be used in any existing noncombustible roof deck Classification. When this is done, the resulting roof covering is acceptable for use over combustible (15/32-in. minimum) roof decks. The joints in the gypsum board and overlayment board are offset a minimum of 6-in. with the joints in the roof deck. Minimum 1/4 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 3:12 when used as a thermal barrier over a combustible roof deck in a system with any UL Classified insulation except polystyrene. Minimum 1/2 in. thick United States Gypsum Co. "SECUROCK Gypsum-Fiber Roof Board" (Type FRX-G) is limited to a maximum incline of 1:12 when used as a thermal barrier over a combustible roof deck in a system without insulation or with any UL Classified polystyrene insulation.

Unless otherwise indicated, Johns Manville "ENRGY 2 Plus" (composite) insulation may replace the "HP Recovery Board" over polyisocyanurate insulation in any of the systems mentioned below.

Unless otherwise indicated, any UL Classified wood fiber board, any oriented strand board (OSB), Carlisle Syntec Systems "StormBase", "StormBase NH", Carlisle Syntec Systems ENBase or Hunter Panels H-Shield-NB, "H-Shield NB NH" may replace "HP Recovery Board" in any of the systems mentioned below.

Unless otherwise indicated, on non-combustible decks, Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", "SecurShield HD Composite", "SecurShield HD Composite NH", "StormBase", "StormBase NH", or Hunter Panels "H-Shield HD", "H-Shield HD NH","H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite", "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", "H-Shield-NB" or "H-Shield-NB NH" may replace, or be used in addition to, any Carlisle Syntec Systems product or any UL Classified wood fiberboard, in any UL Classified insulated roof covering system assembly and retain the classification of that assembly, though the maximum slope cannot exceed 1/2:12 if Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", or "SecurShield HD Composite", "SecurShield HD Composite NH" or Hunter Panels "H-Shield HD", "H-Shield HD NH" "H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite" or "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", is used directly below TPO membrane. Unless otherwise indicated, on combustible roof decks, Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus","SecurShield HD Plus NH", "SecurShield HD Composite", "SecurShield HD Composite NH", "StormBase", "StormBase NH",, or Hunter Panels "H-Shield HD", "H-Shield HD NH","H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite", "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", "H-Shield-NB" or "H-Shield-NB NH" may be used in addition to any Carlisle Syntec Systems polyisocyanurate product or may replace, or be used in addition to, any UL Classified wood fiber board, in any insulated UL Classified roof covering system assembly and retain the classification of that assembly, though the maximum incline cannot exceed 1/2:12 if Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", or "SecurShield HD Composite", "SecurShield HD Composite NH" or Hunter Panels "H-Shield HD","H-Shield HD NH" "H-Shield HD90","H-Shield HD90 NH", "H-Shield HD Composite" or "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", is used directly below TPO membrane.

Minimum 1/2 in. thick Carlisle Syntec Systems "SecurShield HD", "SecurShield HD NH", "SecurShield HD Plus", "SecurShield HD Plus NH", "SecurShield HD Composite", "SecurShield HD Composite NH" or Hunter Panels "H-Shield HD", "H-Shield HD NH" , "H-Shield HD90", "H-Shield HD90 NH", "H-Shield HD Composite" or "H-Shield HD Composite CG", "H-Shield HD Composite CG NH", may be used over any UL Classified polystyrene on non-combustible roof decks. Maximum incline shall be in accordance with the Classification established for the insulation/membrane roof covering system, but cannot exceed 2:12.

Uniform or tapered insulation may be used in the following assemblies provided they do not exceed the indicated incline or thickness and carry a UL label.

Unless otherwise indicated, the term "Referenced Insulations" will include the following:

Carlisle Syntec Systems:

"Polyiso HP"	"SecurShield-N"	"SecurShield HD Plus NH"
"Polyiso HP-H"	"Tapered SecurShield-N"	"SecurShield HD Composite"
"InsulBase"	"SecurShield"	"SecurShield HD Composite NH"
"InsulBase NH"	"SecurShield NH"	"Tapered Polyiso HP-HCG"

"Polyiso HP-W"	"SecurShield-W"	"Tapered SecurShield"
"Polyiso HP-WLC"	"SecurShield HD"	"Tapered SecurShield NH"
"Polyiso HP-HCG"	"SecurShield HD NH"	"Polyiso HP-HDD"
"Tapered Polyiso"	"SecurShield HD Plus"	

Atlas Roofing Corp.:

"ACFoam II"	"ACFoam III"

Hunter Panels:

"H-Shield"	"H-Shield-CG NH",	"H-Shield HD90 NH"
"H-Shield NH"	"H-Shield CGw"	"H-Shield HD Composite"
"H-Shield ca"	"H-Shield HD",	"H-Shield HD Composite CG"
"H-Shield W"	"H-Shield HD NH"	"H-Shield HD Composite CG NH"
"H-Shield-CG"	"H-Shield HD90"	

Johns Manville:

"ENRGY- 2",	"ENRGY-3"

Firestone Building Products:

"ISO 95+GL"	"ISO 95+GW"	"ISO 95+HF"

Rmax Operating LLC.:

"Multi-Max" (EPDM only), any thickness.	

Any UL Classified Expanded (EPS) or Extruded (XPS), maximum density 1.25 pcf, any thickness, may be used below the referenced Carlisle Syntec Systems or Hunter Panels polyisocyanurate insulations on non-combustible roof decks provided a minimum 1- in. thick layer of Carlisle Syntec Systems or Hunter Panels polyisocyanurate insulation is used. Maximum incline shall be in accordance with Classification established for the polyisocyanurate insulation/membrane roof covering system, but cannot exceed 1:12.

"Sure-Tough" reinforced EPDM membrane is classified in 45 to 75 mil thicknesses. "Sure-Tough FR" reinforced EPDM membrane is classified in 45 to 60 mil thicknesses.

"Weather Bond Pro(TM) 101 Rubber Roofing Membrane" may be used in lieu of "Sure-Seal EPDM" in any applicable Classification.

"Weather Bond Pro(TM) 310 Multipurpose Lap Sealant" may be used in lieu of "Sure-Seal® Lap Sealant" and "Weather Bond Pro(TM) 121 Rubber Roofing Adhesive" may be used in lieu of "Sure-Seal® 90-8-30A Bonding Adhesive" in any applicable Classification.

Unless otherwise indicated in the systems described below, any adhesive splice may be overlaid with pressure-sensitive flashing.

"Sure-Seal FR EPDM", 90 mil is an acceptable alternate to the 45 and 60 mil thick "Sure Seal FR EPDM" in any applicable Classification.

"Polyiso HP-H", "InsulBase", and "InsulBase NH" may be used in any UL Classified insulated roof covering system assembly that incorporates the use of any UL Classified polyisocyanurate insulation.

United Solar Ovonic LLC's Field-Assembled Photovoltaic (Solar) Module Systems, "PVL-29, -31, -58, -60, -62, -64, -68, -87, -93, -116, -120, -124, -128, -136 and -144", may be installed over any UL Classified Carlisle Syntec Systems roof covering membrane assembly. The Module system is either adhered directly to the roof covering membrane in the field or adhered to an intermediate roof covering material layer in the factory (using an adhesive below or a film over top) and then attached to the roof covering membrane in the field using heat welding, adhesive around the perimeter or fasteners. The Classification applies to combustible and non-combustible roof decks. The maximum incline and Classification (Class A, B or C) shall be in accordance with the Classification established for the membrane roof covering assembly, however the incline cannot exceed 1-1/2:12 for EPDM and PVC membranes and 1:12 for TPO membranes.

In the roof covering systems described below, the "Alutrix FR" or "VapAir Seal™ MD" vapor barrier may be used below the insulation. The vapor barrier may be applied to either the thermal barrier or directly to the deck.

A vapor barrier (non-UL Classified) may be used below the insulation in any of the following systems without affecting the Classification.

The "APEEL Protective Film" applied to any UL Classified Carlisle Syntec Systems TPO or PVC membrane is removed after the completion of installation of the roof covering system. The Classification established for the UL Classified Carlisle Syntec Systems TPO or PVC membrane roof covering system would be maintained.

Any Carlisle Syntec Systems TPO or PVC finished product may also include the statement "with APEEL Protective Film" as part of the trade name. The "APEEL Protective Film" is removed after the completion of the installation of the roof covering system. The Certification established for the UL Certified Carlisle Syntec Systems TPO or PVC membrane roofing systems would be maintained.

Use of the Carlisle Syntec Pressure Equalizing Vent System designated “VacuSeal Vent” is permissible within any Carlisle Syntec Systems roof covering system assembly without altering the indicated fire Classification.

Detec Systems LLC, "TruGround™ Conductive Primer", applied at 1/3 gal/100 ft^2 may be used within any Carlisle Syntec Systems roof covering system assembly without altering the indicated fire Classification.

Unless otherwise indicated "X-Tenda Coat XTRA Silicone Gray Roof Coating", "X-Tenda Coat XTRA Silicone Light Gray Roof Coating", "X-Tenda Coat XTRA Silicone Dark Gray Roof Coating", "X-Tenda Coat XTRA Silicone Almond Roof Coating", "X-Tenda Coat XTRA Silicone Tan Roof Coating", "X-Tenda Coat XTRA Silicone Charcoal Roof Coating", "X-Tenda Coat XTRA Silicone Terra Cotta Roof Coating", "X-Tenda Coat XTRA Silicone Bri` Yellow Roof Coating", "X-Tenda Coat XTRA Silicone Brown Roof Coating", "X-Tenda Coat XTRA Silicone Custom Color Roof Coating" are acceptable alternates to "X-Tenda Coat XTRA Silicone White Roof Coating" in all applicable Classifications.

For Combustible Roof Decks - Class A:

1. A minimum 3-in. thick layer or a minimum two layers of 1.5 in. thick of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH" is placed directly over a combustible deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof cover covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 3-in. minimum total thickness of Carlisle Syntec Systems "SecurShield" "SecurShield HD Composite", "SecurShield NH", "SecurShield HD Composite NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

2. A minimum 2.5 in. thick layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH" is placed over a minimum 2.5 in. layer of any UL Classified insulation (except expanded or extruded polystyrene) over a combustible roof deck. The insulation is covered with any UL Classified roof

covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

3. A minimum 1.9 in. thick layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH" is placed over 1 layer of Carlisle Syntec Systems "FR Base Sheet 1S" or GAF "VersaShield FB-1S" over a combustible roof deck. The insulation is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9 in. minimum total thickness of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH" or "SecurShield HD Composite NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

4. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" over a minimum 2.5 in. thick layer of any Carlisle Syntec Systems or Hunter Panels Classified polyisocyanurate insulation is placed directly over a combustible deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 3- in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

5. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" over a minimum 1.4 in. thick layer of any Carlisle Syntec Systems or Hunter Panels Classified polyisocyanurate insulation is placed over a minimum 1 layer of Carlisle Syntec Systems "FR Base Sheet 1S" or GAF "VersaShield FB-1S" over a combustible roof deck. The insulation is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

6. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1- in. minimum thickness of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the

membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

7. A minimum 1/2 in. thick layer of "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or Carlisle Syntec Systems "SecurShield HD RL" over a minimum 4-in. thick layer of any UL Classified EPS insulation is placed directly over a combustible deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

8. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH" over a minimum 3-1/2 in. thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roofing assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roofing assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

9. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD FR" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1/2 in. minimum thickness of "SecurShield HD FR". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roofing assembly, however the incline cannot exceed 1/2:12.

10. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD FR" over a minimum 3-1/2 in. thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

11. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield" or "SecurShield NH" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1- in. minimum thickness of Carlisle Syntec Systems "SecurShield" or "SecurShield NH". All layers may be loosely laid or attached with fasteners and

plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 12- in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

12. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield" or "SecurShield NH" over a minimum 3-1/2 in. thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 12-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU); however the incline cannot exceed 1/2:12.

13. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" is placed directly over a combustible deck and is covered with any UL Classified roofing membrane used in any UL Class A roof covering assembly to achieve a Class A fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1/2 in. minimum thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 12 in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roofing assembly as published on UL's On-Line Certification Directory for the product category Roofing Systems (TGFU); however the incline cannot exceed 1:12.

For Combustible Roof Decks - Class B:

1. A minimum 1.9 in. thick layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH", or "SecurShield HD Composite NH" or a minimum 2-in. thick layer of Carlisle Syntec Systems "Polyiso HP-WLC" or Atlas Roofing Corp. "AC Foam III" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class B roof covering assembly to achieve a Class B fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9-in. minimum thickness layer of Carlisle Syntec Systems "SecurShield", "SecurShield HD Composite", "SecurShield NH", "SecurShield HD Composite NH" or 2-in. minimum thickness layer of Carlisle Syntec Systems "Polyiso HP-WLC" or Atlas Roofing Corp. "AC Foam III". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6-in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

2. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD", "SecurShield HD Plus", "SecurShield HD NH", "SecurShield HD Plus NH" or "SecurShield HD RL" over a minimum 1.4- in. thick layer of any Carlisle Syntec Systems or Hunter Panels Classified polyisocyanurate insulation is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A or B roof covering assembly to achieve a Class B fire Classification. As an alternative, any UL Classified insulation (except expanded or extruded polystyrene), any combination, any thickness, may be used below the 1.9- in. minimum total thickness. All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation joints must be staggered a minimum of 6- in. from the roof deck joints or from the

insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly, however the incline cannot exceed 1/2:12.

3. A minimum 1-in. thick layer of Carlisle Syntec Systems "SecurShield CD" or "SecurShield CD NH" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A or B roof covering assembly to achieve a Class B fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the "SecurShield CD" or "SecurShield CD NH". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All layers joints must be staggered a minimum of 6- in. from the roof deck joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's On-Line Certification Directory for the product category Roofing Systems (TGFU).

4. A minimum 1/2 in. thick layer of Carlisle Syntec Systems "SecurShield HD FR" is placed directly over a combustible roof deck and is covered with any UL Classified roof covering membrane used in any UL Class A or B roof covering assembly to achieve a Class B fire Classification. Any UL Classified insulation, any combination, any thickness, may be used below the "SecurShield HD FR". All layers may be loosely laid or attached with fasteners and plates, hot roofing asphalt or cold adhesive. A vapor barrier (non-UL classified) may also be used below the insulation. All insulation layer butt joints must be staggered a minimum of 6-in. from the roof deck butt joints or from the insulation joints directly below. The maximum incline shall be in accordance with the Classification established for the membrane/insulation roof covering assembly as published on UL's Product iQ™ database for the Classifications published under the product category of Roofing Systems (TGFU).

Unless otherwise indicated, Classifications for "Sure-Flex PVC" include 50 mil, 60 mil and 80 mil thick membranes. "Sure-Flex PVC FRS " and "Sure-Flex KEE HP" are acceptable alternates to "Sure-Flex PVC" in any applicable Classification. For adhered "Sure-Flex PVC" assemblies, the membrane is adhered with Carlisle Syntec Systems "PVC Bonding Adhesive" or "Low VOC PVC Bonding Adhesive" at 45 to 65-ft^2/gal., Carlisle Syntec Systems "Aqua Base 120 Bonding Adhesive" at 120-ft^2/gal., Carlisle Syntec Systems "HydroBond PVC Adhesive" at 125-ft^2/gal., Ashland "Pliobond 7008" at 165-ft^2/gal., Sika Sarnafil Inc. "Sarnacol 2121" at 125-ft^2/gal. or "Cav-Grip PVC" at 0.75-gal./100-$ft.^2$.

The use of the "Sure-Flex PVC Contour Rib Profiles" may be used over any Classified "Sure-Flex PVC" roof covering system, provided minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" or United States Gypsum Co. "SECUROCK Roof Board" is used as the barrier board. Maximum incline shall be in accordance with the Classification established for the barrier board/membrane roof covering system.

The use of the "Sure-Weld TPO Contour Rib Profiles", spaced minimum 18" on center, may be used over any Classified "Sure-Weld TPO" roof covering system, provided minimum 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck® Roofboard", "DensDeck Prime® Roofboard" or "DensDeck DuraGuard™ Roofboard" or United States Gypsum Co. "SECUROCK Roof Board" is used as the barrier board. Maximum incline shall be in accordance with the Classification established for the barrier board/membrane roof covering system.

Unless otherwise indicated "Spectro-Weld", "PVW" and "GeoTPO" may be used in lieu of "Sure-Weld" TPO membrane in any applicable Classification.

Unless otherwise indicated Atlas Roofing Corp. "FR 50" is an acceptable alternate for the "FR Base Sheet" at a maximum incline of 1-1/2:12.

UL2218A Impact Resistance:

Any UL Classified Carlisle SynTec Systems utilizing "Sure-Weld", "Sure-Weld EXTRA", "Spectro-Weld", "GeoTPO", "Sure-Weld HS EXTRA", "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", "Sure-Weld FleeceBACK 135", "Sure-Weld AFX 120", "Sure-Weld AFX 135", "Sure-Weld AFX 147", "Sure-Weld AFX 155", "Sure-Weld HS", "Sure-Weld SAT TPO Membrane", "Sure-Weld FleeceBACK RL", or "Sure-Weld FleeceBACK FR" TPO membranes is Classified per ANSI/UL 2218A Class 4 Impact Resistance when any of the following conditions are met:

1. Minimum 72-mil TPO membrane is applied over any combination of substrate layers, as specified in the roof covering systems. The substrate layer(s) may be attached with fasteners and plates.

2. Minimum 60-mil TPO membrane is applied over any of the following substrates: Barrier Board, Oriented Strand Board, Plywood or Slipsheet over Plywood. These substrates may be placed over insulation or additional substrate layers as specified in the roofing systems. The substrate layer(s) may be attached with fasteners and plates.

3. Minimum 45-mil TPO membrane is applied over any combination of substrate layers, as specified in the roof covering systems, and the top substrate layer is attached with adhesives or asphalt. Lower substrate layers may be attached with fasteners and plates, adhesives or asphalt.

Any UL Classified Carlisle SynTec Systems utilizing "Sure-Flex PVC", "Sure-Flex PVC FRS", "Sure-Flex KEE HP", "Sure-Flex KEE HP FRS FleeceBACK", "Sure-Flex PVC FleeceBACK", "Sure-Flex PVC FRS FleeceBACK", "Sure-Flex KEE HP FleeceBACK", "Sure-Flex FleeceBACK RL", "Sure-Flex PVC FleeceBACK FR", "Sure-Flex PVC FRS FleeceBACK FR", "Sure-Flex KEE HP FleeceBACK FR", or "Sure-Flex KEE HP FRS FleeceBACK FR" PVC membranes is Classified per ANSI/UL 2218A Class 4 Impact Resistance when either of the following conditions are met:

1. Minimum 80-mil PVC membrane is applied over any combination of substrate layers, as specified in the roof covering systems. The substrate layer(s) may be attached with fasteners and plates.

2. Minimum 50-mil PVC membrane is applied over any combination of substrate layers, as specified in the roof covering systems, and the top substrate layer is attached with adhesives or asphalt. Lower substrate layer(s) may be attached with fasteners and plates, adhesives or asphalt.

Any UL Classified Carlisle SynTec Systems utilizing "Sure-Tough EPDM", "Sure-Tough FR EPDM", "Sure-White EPDM", "Sure-Seal EPDM", "Sure-Seal FR EPDM", "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100 Membrane", "Sure-White FleeceBACK 115 Membrane", "Sure-White FleeceBACK 145 Membrane", "Sure-Seal FleeceBACK 100 FR", "Sure-Seal FleeceBACK 115 FR", "Sure-Seal FleeceBACK 145 FR", "Sure-Seal AFX 90", "Sure-Seal AFX 105", "Sure-White FleeceBACK 100 FR", "Sure-White FleeceBACK 115 FR", "Sure-White FleeceBACK 145 FR", "Sure-Seal FleeceBACK RL", "Sure-Seal SAT", "Sure-Tough SAT", "Sure-White SAT", or “Sure-Seal Cool Gray EPDM” EPDM membranes is Classified per ANSI/UL 2218A Class 4 Impact Resistance when any of the following conditions are met:

1. Minimum 75-mil EPDM membrane is applied over any combination of substrate layers, as specified in the roof covering systems. The substrate layer(s) may be attached with fasteners and plates.

2. Minimum 60-mil EPDM membrane is attached with adhesives or asphalt over any of the following substrates: Barrier Board, Oriented Strand Board, Plywood or Slipsheet over Plywood. These substrates may be placed over insulation or additional substrate layers as specified in the roofing systems. The substrate layer(s) may be attached with fasteners and plates.

3. Minimum 45-mil EPDM membrane is applied over any combination of substrate layers, as specified in the roof covering systems, and the top substrate layer is attached with adhesives or asphalt. Lower substrate layer(s) may be attached with fasteners and plates, adhesives or asphalt.

Any UL Classified Carlisle SynTec Systems ballasted roof covering system is Classified for ANSI/UL 2218A Class 4 Impact Resistance when applied over any combination of substrate layers, as specified in the roof covering systems.

Class A - Ballasted

Unless otherwise indicated in the systems described below, the insulation and the membrane are laid loosely and surfaced with river

2. **Deck:** C-15/32 **Incline:** See Note
Slip Sheet: — One layer Carlisle Syntec Systems "FR Base Sheet 1s" or GAF "VersaShield FB-1S" or Atlas Roofing Corp. "FR-10".
Insulation (Optional): — Any UL Classified (except EPS and wood fiberboard), any combination, any thickness.
Membrane: — Any UL Classified Carlisle Syntec Systems PVC membrane.
Note: Maximum incline shall be in accordance with Classification established for the membrane roof covering system applied over fiberboard or gypsum, but cannot exceed 1/2:12.

3. **Deck:** NC **Incline:** 2-1/2
Insulation: — See "Referenced Insulations", any combination, any thickness.
Membrane: — "Sure-Flex PVC".

4. **Deck:** NC **Incline:** 2
Insulation: — Rmax Operating LLC "Multi-Max" series, any thickness.

Class C - Fully Adhered (PVC)

1. **Deck:** C-15/32 **Incline:** 1
Insulation: — "Carlisle HP Recovery Board" or any UL Classified wood fiberboard, 1/2 in. thick minimum.
Membrane: — Any UL Classified Carlisle Syntec Systems PVC membrane.

2. **Deck:** NC or C-15/32 **Incline:** Unlimited
Insulation (optional): — Any UL Classified, any combination, any thickness.
Insulation: — See "Referenced Insulations", any combination, any thickness.
Membrane: — "Sure-Flex PVC".

3. **Deleted.**
4. **Deck:** NC or C-15/32 **Incline:** 4-1/2
Insulation (optional): — Any UL Classified, any combination, any thickness.
Insulation: — Rmax Operating LLC "Multi-Max" series , any thickness.
Membrane: — "Sure-Flex PVC".

5. **Deck:** C-15/32 **Incline:** 1/2
Insulation (Optional): — Any UL Classified insulation, any thickness.
Cover Board: — "EcoStorm VSH Coverboard", minimum 5/16-in. thick, with all butt joints staggered a minimum of 6-in. from the plywood roof deck butt joints.
Membrane: — Any UL Classified PVC membrane.

Class A — Adhered FleeceBACK (EPDM, TPO, & PVC)

In any of the following systems, concrete decking, Georgia-Pacific Gypsum LLC "DensDeck® Overlayment Board" or United States Gypsum Co. "SECUROCK Gypsum Fiber Roof Board" may be primed with an acceptable primer and optionally covered with "VapAir Seal 725TR".

Unless otherwise indicated, the following adhesives may be used as alternates to one another in any of the following systems:

Adhesive	Alternate
"FAST 100 LV"	

	"Cav-Grip III Adhesive/Primer", "FAST Dual Cartridge Adhesive", and "FAST 5-Gallon Jug Adhesive"
"Flexible FAST® Adhesive"	"Flexible FAST 5-Gallon Jug Adhesive", "Flexible FAST Dual Cartridge Adhesive", and "Flexible FAST® Dual Tank Adhesive"

Unless otherwise noted, Insulfoam LLC "Insulfoam SP", minimum 1 in. thick, can be used in lieu of polyisocyanurate insulation in any of the following systems.

1. **Deleted.**
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8. **Deleted.**
9. **Deleted.**

10. **Deck:** C-15/32 **Incline:** See Note

Slip Sheet: — Two layers Carlisle Syntec Systems "FR Base Sheet 2S", GAF "VersaShield Underlayment" or "VersaShield FB-2S", or three layers Carlisle Syntec Systems "FR Base Sheet 1S" or GAF "VersaShield FB-1S".

Insulation (Optional): — Any UL Classified (except EPS), any combination, any thickness.

Membrane: — "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100", "Sure-White FleeceBACK 115", "Sure-White FleeceBACK 145", "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127" and "Sure-Weld FleeceBACK 135", "Sure-Flex KEE HP FRS FleeceBACK 105", "Sure-Flex KEE HP FRS FleeceBACK 115", "Sure-Flex KEE HP FRS FleeceBACK 135", "Sure-Flex PVC FleeceBACK 105", Sure-Flex PVC FleeceBACK 115", "Sure-Flex PVC FleeceBACK 135", "Sure-Flex PVC FRS FleeceBACK 105", “Sure-Flex PVC FRS FleeceBACK 115", "Sure-Flex PVC FRS FleeceBACK 135", "Sure-Flex KEE HP FleeceBACK 105", Sure-Flex KEE HP FleeceBACK 115", and "Sure-Flex KEE HP FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Dual Cartridge Adhesive”, “Flexible FAST Dual Tank Adhesive”, “FAST Dual Cartridge Adhesive”, “FAST Dual Tank Adhesive”, “Flexible FAST® 5-Gallon Jug Adhesive”, “Flexible FAST® Adhesive”, “FAST® 5-Gallon Jug Adhesive”, or “FAST® 100 LV” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}
- "Cav-Grip III Adhesive/Primer" applied at 0.45-gal./100-ft.^{2}
- "Aqua Base 120" applied at 100 to 120-ft.²/gal
- "HydroBond Water-Based Adhesive" applied at 100-ft.²/gal

Note: Maximum incline shall be in accordance with Classification established for the insulation/membrane roof covering system when insulation is used or established for the membrane roof covering system applied over fiberboard or gypsum when insulation is not used, but cannot exceed 2:12.

10A. **Deck:** C-15/32 **Incline:** See Note

Slip Sheet: — Three layers Carlisle Syntec Systems "FR Base Sheet 1s" or GAF "VersaShield FB-1S".

Insulation (Optional): — Any UL Classified (except EPS and wood fiberboard), any combination, any thickness.
Membrane: — "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100", "Sure-White FleeceBACK 115", and "Sure-White FleeceBACK 145" (see adhesion methods).
Adhesion Methods:

- “Flexible FAST® Dual Cartridge Adhesive”, “Flexible FAST Dual Tank Adhesive”, “FAST Dual Cartridge Adhesive”, “FAST Dual Tank Adhesive”, “Flexible FAST® 5-Gallon Jug Adhesive”, “Flexible FAST® Adhesive”, “FAST® 5-Gallon Jug Adhesive”, or “FAST® 100 LV” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}
- "Cav-Grip III Adhesive/Primer" applied at 0.45-gal./100-ft.^{2}
- "Aqua Base 120" applied at 100 to 120-ft.²/gal
- "HydroBond Water-Based Adhesive" applied at 100-ft.²/gal

Note: Maximum incline shall be in accordance with Classification established for the insulation/membrane roof covering system when insulation is used or established for the membrane roof covering system applied over fiberboard or gypsum when insulation is not used.

10B. **Deck:** C-15/32 **Incline:** See Note
Slip Sheet: — Two layers Carlisle Syntec Systems "FR Base Sheet 1s" or GAF "VersaShield FB-1S" or Atlas Roofing Corp. "FR-10".
Insulation (Optional): — Any UL Classified (except EPS and wood fiberboard), any combination, any thickness.
Membrane: — "Sure-Seal FleeceBACK 100", "Sure-Seal FleeceBACK 115", "Sure-Seal FleeceBACK 145", "Sure-White FleeceBACK 100", "Sure-White FleeceBACK 115", and "Sure-White FleeceBACK 145" (see adhesion methods).
Adhesion Methods:

- “Flexible FAST® Dual Cartridge Adhesive”, “Flexible FAST Dual Tank Adhesive”, “FAST Dual Cartridge Adhesive”, “FAST Dual Tank Adhesive”, “Flexible FAST® 5-Gallon Jug Adhesive”, “Flexible FAST® Adhesive”, “FAST® 5-Gallon Jug Adhesive”, or “FAST® 100 LV” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}
- "Cav-Grip III Adhesive/Primer" applied at 0.45-gal./100-ft.^{2}
- "Aqua Base 120" applied at 100 to 120-ft.²/gal
- "HydroBond Water-Based Adhesive" applied at 100-ft.²/gal

Note: Maximum incline shall be in accordance with Classification established for the insulation/membrane roof covering system when insulation is used or established for the membrane roof covering system applied over fiberboard or gypsum when insulation is not used, but cannot exceed 3/4:12

11. **Deck:** NC **Incline:** 1/4
Insulation: — Hunter Panels "H-Shield ca" or Johns Manville "ENRGY3" any combination, any thickness.
Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135", adhered with "FAST® 100 LV" adhesive", applied at a rate of 1-gal./100-ft.^{2} or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center, or "Cav-Grip III Adhesive/Primer", applied at a rate of 0.45 gal./100-ft^2.

12. **Deck:** NC **Incline:** 1/2
Insulation: — See "Referenced Insulations" except Hunter Panels "H-Shield ca" or Johns Manville "ENRGY3", any combination, any thickness.
Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-

- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

30. **Deck:** NC **Incline:** 1

Insulation: — Any UL Classified, any thickness.

Insulation: — "Carlisle HP Recovery Board" or 1/2 in. thick minimum wood fiberboard.

Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Adhesive”, “Flexible FAST Dual Tank Adhesive” or “FAST Dual Tank Adhesive” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

30A. **Deck:** NC **Incline:** 1

Substrate: — Cellular concrete, gypsum concrete, precast concrete with grouted joints or structural (poured-in-place) concrete.

Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Adhesive”, “Flexible FAST Dual Tank Adhesive” or “FAST Dual Tank Adhesive” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

31. **Deck:** C-15/32 **Incline:** 2

Insulation (Optional): — Any UL Classified , any combination, any thickness.

Barrier Board: — 1/2 in. thick minimum gypsum board or 1/4 in. thick Georgia-Pacific Gypsum LLC "DensDeck®".

Membrane: — "Sure-Weld FleeceBACK 100", "Sure-Weld FleeceBACK 115", "Sure-Weld FleeceBACK 127", or "Sure-Weld FleeceBACK 135" (see adhesion methods).

Adhesion Methods:

- “Flexible FAST® Adhesive”, “Flexible FAST Dual Tank Adhesive” or “FAST Dual Tank Adhesive” applied at 1-gal./100-ft.² or in a ribbon pattern of ¾ to 1-in. diameter, maximum 12-in on-center
- “Flexible FAST Dual Tank Adhesive” applied in a splatter pattern at a rate of 3.7-lbs/100-ft.² (0.4-gal./100-ft.^{2})
- “Flexible FAST® Adhesive” applied in a splatter pattern at a rate of 0.5-gal./100-ft.^{2}

32. **Deleted.**

33. **Deleted.**

34. **Deleted.**

35. **Deleted.**

36. **Deleted.**

37. **Deleted.**

38. **Deleted.**

39. **Deleted.**

40. **Deck:** C-15/32 **Incline:** 1

Insulation (Optional): — Any UL Classified , any combination, any thickness.

Evaluation Report, authorized by ICC-ES and provided for your convenience.

Trademark and/or Tradename: "CCW", "Carlisle Syntec Systems SynTec Systems", "Carlisle Syntec Systems Coatings & Waterproofing", "Carlisle Syntec Systems Residential", "Hunter Panels", "Insulfoam", "Versico Roofing Systems", "WeatherBOND"

Last Updated on 2024-12-06

MAY

1175 Peachtree Street NE
Colony Square Building 100
Suite 1800
Atlanta, GA 30361
404 614 0700
www.mayarchitecture.com

Submittal Review

Review Notes:

- Color selection : White

- Provide necessary documentation for warranty as listed in spec 07 54 23 Section 1.12.

- The specified thickness is 135 mils including fleece backing.

- Provide necessary documentation for Fire-Test-Response Characteristic as listed in spec 07 54 23 section 1.06 D. 3

Revise and resubmit

Reviewed by: Ivette Hamel

Date: 01/07/2025

May Architecture

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for quantities; dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with the Contract Documents.

General Review Comments

Note: The following list may not comprise all of the submittal review comments. At times a graphic marking on the submittal is required to convey a comment. Therefore, refer also to the submittal itself for possible additional comments. The above comments plus any on the submittal itself comprise the comments related to this review.

Gerrits Construction

8177 Glades Rd, Suite 206
Boca Raton, FL 33481-0813
Telephone (561) 477-3553
Fax (561) 477-0876

Submittal cover page

To: May Architecture & Interior	**Project No:**
ATTN: Joseph Okelarin & Todd Combs	**Date:** 11.12.2024
CC: Bill Alexander & Sarah Wagner	**Re:**

WE ARE SENDING THE FOLLOWING INFORMATION:

☒ ATTACHED EMAIL ☐ BY MAIL ☐ BY EXPRESS ☐ BY HAND ☒ SHOP DRAWINGS ☐ PRINTS ☐ PLANS
☐ SAMPLES ☐ SPECIFICATIONS ☐ COPY OF LETTER ☐ CHANGE ORDER ☒ MANUF. DATA

COPIES	DATE	#	DESCRIPTION
	11/12/24	2413-089-1.1-075423	TPO Thermoplastic Roofing

REMARKS:

☒ For approval ☒ Urgent ☐ For your use ☐ Reply ASAP ☐ Please comment

Date Reviewed: 11.12.2024

Submittal No.: 2413-089-1.1-075423

Review of this shop drawing is limited to general design requirements of the contract documents and the general compliance therewith. This review does not relieve the subcontractor / supplier / manufacturer ("Offeror") of the responsibility for compliance with the contract documents, subcontract agreement / purchase order, and applicable codes. Verification of all actual dimensions, field conditions, and coordination with other trades is the sole responsibility of the offeror(s).

(✓) Acceptance Recommended
( ) Acceptance Recommended as Noted
( ) Other – Please Advise if Acceptable
( ) Revise and Resubmit
( ) Rejected

By: JP

CARLISLE
SYNTEC SYSTEMS

Select Medical, Miami Lakes

Select Medical, Miami Lakes

Table of Contents

November 11, 2024

NATIONS ROOF SOUTHERN FLORIDA LLC - 270208
3772 N.W. 126 AVENUE
CORAL SPRINGS, FL 33065
United States

Project: Authorized Applicator Letter

To Whom It May Concern:

This letter is to confirm that NATIONS ROOF SOUTHERN FLORIDA LLC - 270208 in CORAL SPRINGS, FL is a Carlisle Authorized Applicator.

If you should have any further questions, please feel free to contact me.

Sincerely,

Shannon Wyatt
Southeast Regional Sales Manager

CARLISLE SYNTEC SYSTEMS

FleeceBACK® TPO Membranes

Selected for this project

Overview

FleeceBACK TPO membranes are manufactured using a hot-melt extrusion process for complete scrim encapsulation. Once the TPO is reinforced and enhanced with fleece, the total sheet thicknesses available are 100-, 115-, and 135-mils, creating a very tough, durable and versatile sheet that is ideal for re-roofing or new construction projects. FleeceBACK TPO sheets are chlorine free and plasticizer free with excellent chemical resistance to acids, bases, restaurant oils, and greases.

All FleeceBACK TPO membranes utilize Octaguard XT™ weathering package technology to withstand extreme durability testing intended to simulate exposure to severe climates. FleeceBACK TPO's advanced polymerization technology combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene.

FleeceBACK TPO membranes are intended to be used with adhered or mechanically fastened roofing systems. FleeceBACK TPO is ideally suited for roof garden and solar panel applications and projects demanding superior wind uplift resistance due to its added toughness and durability. FleeceBACK TPO is also a great solution for buildings requiring low noise and odors during roofing application.

Features and Benefits

- No VOCs, low odor, low noise, and speed of application minimizes occupied building disruptions
- Superior wind uplift performance and ratings (up to an FM 1-990) due to a mechanical bond between fleece and adhesive
- 75% fewer seams than Modified Bitumen
- Wide window of weldability
- Fleece reinforcement adds toughness, durability, and enhanced puncture resistance
  - 115-mil membrane delivers 33% greater puncture resistance and 33% greater breaking strength than 60-mil TPO
  - Greater puncture resistance than Modified Bitumen
- Excellent hail damage resistance:
  - Passes FM's severe hail test
  - Passes UL-2218 Class 4 rating
  - Passes National Bureau of Standards – 23 Ice Ball test up to 3"-diameter hail with the membrane cooled to 32°F
- Standard Colors:

White | Gray | Tan

- Special Colors:

Slate Gray | Med Bronze | Terra Cotta | Patina Green | Rock Brown

*Sure-Weld® HS Special Color TPO membranes are available in limited sizes. Refer to Carlisle's Sure-Weld HS TPO Special Color Program Sell Sheet for details.

Sustainable Attributes

Carlisle SynTec Systems' focus has always been innovation - Innovation to solve problems, improve performance, reduce labor, and above all, improve sustainability. Carlisle is committed to driving sustainable and efficient processes in the design and manufacturing of our products.

- Up to 10% pre-consumer recycled content
- Free of Living Building Challenge red list chemicals
- NSF P151 Certification for rainwater catchment*
- 3rd-party verified Environmental Product Declaration available

*Plant 91/White only

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO Membranes

Optional APEEL™ Protective Film

Shield Carlisle's FleeceBACK TPO membrane from dirt and scuffs during installation with APEEL Protective Film. Factory-applied and easy to remove, APEEL eliminates the need for rooftop cleaning upon project completion.

- Ideal for re-roofing, re-cover, and new construction projects
- Simple and easy to remove
- Saves time and money when compared to pressure washing
- Protecting from dirt maintains maximum membrane reflectivity and long-term performance

Installation

Simply order membrane with APEEL, install, and remove the film to reveal a clean, new roof.

- APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance .
- When the installation of the entire roofing system is complete, remove and discard the APEEL Protective Film.

Installation

Adhered Roofing System

Insulation is mechanically fastened or adhered. Spray-apply, splatter, or extrude Flexible FAST™ Adhesive to the substrate and allow foam to "string/body" approx 1–2 minutes prior to setting FleeceBACK TPO into the Flexible FAST Adhesive. Roll FleeceBACK TPO membrane with a 30"-wide, 150-pound weighted roller to ensure full embedment. Splices are hot-air welded. End laps are butted and sealed with reinforced membrane or a head sheet may be utilized.

Review Carlisle specifications and details for complete installation information, including mechanically fastened options.

Precautions

- Use proper stacking procedures to ensure sufficient stability.
- Exercise caution when walking on wet membrane.
- Sunglasses that filter out ultraviolet light are strongly recommended, as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
- White surfaces reflect heat and may become slippery due to frost and ice accumulation.
- Care must be exercised when working close to a roof edge when the surrounding area is snow covered.
- FleeceBACK TPO membrane rolls must be tarped and elevated to keep dry prior to installation. If the fleece gets wet, use a wet vac system to help remove moisture from the fleece. DO NOT INSTALL MEMBRANE IF FLEECE IS WET.
- FleeceBACK TPO membrane exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

Supplemental Approvals, Statements and Characteristics:

1. FleeceBACK TPO meets or exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.
2. Radiative Properties for Cool Roof Rating Council (CRRC) and LEED.
3. FleeceBACK TPO membranes conform to requirements of the US E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
4. FleeceBACK TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 100-mil was watertight after an impact energy of 20 joules, 115-mil was watertight after 25 joules, and 135-mil was watertight after 32.5 joules.

CARLISLE SYNTEC SYSTEMS

FleeceBACK TPO Membranes

LEED® Information

Pre-consumer Recycled Content	10%		
Post-consumer Recycled Content	0%		
Manufacturing Location	Senatobia, MS; Tooele, UT		
Solar Reflectance Index	White: 99	Gray: 52	Tan: 86

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

Physical Property	Test Method	White	Tan	Gray
CRRC – Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC – Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC – Initial thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED – Thermal emittance	C1371	0.90	0.86	0.85
Solar Reflectance Index (SRI) – Initial	ASTM E1980	99	86	52
Solar Reflectance Index (SRI) – Aged 3 Years	ASTM E1980	85	77	49

Carlisle Extreme Testing – Heat Aging

		ASTM Requirement	FleeceBACK TPO Requirement
ASTM Test	240°F	32 weeks*	>128 weeks

*Comparable to 3,120 weeks (6 years) at 185°F for 8 hrs/day.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Carlisle Extreme Testing – Environmental Cycling

–10 days heat aging at 240°F (116°C) followed by 5 days water immersion at 158°F (70°C)
Followed by 5,040 kJ/m² (2000 hrs. at 0.70 W/m² irradiance) xenon-arc exposure

Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion followed by xenon-arc exposure.

Carlisle Testing – Q-Trac

	ASTM D6878 Requirement	Sure-Weld Requirement
ASTM TEST N/A	N/A	Equivalent of 40 years of exposure

Radiative Properties (Initial) for Special Colors

	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.

EXTREME Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose." Carlisle's goal is to produce TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM D6878.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Carlisle requires its Sure-Weld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

FleeceBACK TPO
Membranes

Typical Properties and Characteristics			
Physical Property	**Test Method**	**SPEC. (Min.)**	**FleeceBACK TPO Typicals**
Tolerance on Nominal Thickness, %	ASTM D751	±10	±10
Thickness over Fleece, min			
100-mil (2.54 mm)	—	—	.045 (1.14)
115-mil (2.92 mm)	—	—	.060 (1.52)
135-mil (3.43 mm)	—	—	.080 (2.03)
Weight, lbm/ft²			
100-mil	—	—	0.27
115-mil	—	—	0.33
135-mil	—	—	0.46
Breaking Strength, min, lbf (kN)	ASTM D751	220 (1)	
100-mil	Grab Method		375 (1.7)
115-mil			450 (2)
135-mil			500 (2.2)
Elongation at break of internal fabric, %	ASTM D751	15	25
Tearing Strength, min, lbf (N)	ASTM D751		
100- & 115-mil, 135-mil	B Tongue Tear	55 (245)	100 (445)
Puncture Resistance, Joules	ASTM D5635		
100-mil		—	20
115-mil		—	25
135-mil		—	32.5
Puncture Resistance, lbf	FTM 101C		
100-mil	Method 2031	350	450
115-mil		400	525
135-mil		425	600
Brittleness point, max, °F (°C)	ASTM D2137	-40 (-40)	-50 (-46)
Linear Dimensional Change, %	ASTM D1204	± 1 max	-0.2 typical
Field Seam Strength, lbf/in. (kN/m) ASTM D1876 tested in peel	ASTM D1876		
100-mil		25 (4.4)	50 (8.8)
115-mil		25 (4.4)	60 (10.5)
135-mil		40 (7.0)	70 (12.3)
Water Vapor Permeance, Perms	ASTM E96 Proc B	—	0.10 max, 0.05 typical
Resistance to Microbial Surface Growth, Rating (1 is very poor, 10 is no growth)	ASTM D3274	—	9-10 typical
Properties after heat aging–ASTM D573, 670 hrs. at 240 °F	ASTM D573		
Breaking strength, % retained		—	90 min
Elongation reinf. % retained		—	90 min
Tearing Strength, % retained		—	60 min
Weight Change, %		—	± 1.0 max
Ozone Resistance 100 pphm, 168 hours	ASTM D1149	No cracks	No cracks
Resistance to Water Absorption After 7 days immersion @ 158°F (70°C) Change in mass, max, % (one side)	ASTM D471	± 3.0	0.90
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m² irradiance, 80°C black panel temp.	ASTM G155	No cracks; No loss of breaking or tearing strength	No cracks; No loss of breaking or tearing strength
100-mil			17,640 kj/m²
115-mil			20,160 kj/m²
135-mil			27,720 kj/m²

800-479-6832 | P.O. Box 7000 | Carlisle, PA 17013 | Fax 717-245-7053 | www.carlislesyntec.com

CARLISLE SYNTEC SYSTEMS

Flexible FAST™ Dual Tank Adhesive

HFC-FREE

Productivity Boosting Features and Benefits:

- » Reduces labor by eliminating equipment maintenance and breakdowns
- » Application time reduced up to 15% when compared to low-pressure dispensing machines
- » Increased productivity when Dual Tanks are used simultaneously (each additional Dual Tank can increase productivity up to 100%)

PRODUCTIVITY BOOSTER

Overview

Carlisle's Flexible FAST Dual Tank Adhesive is a two-component, construction-grade, low-rise polyurethane adhesive designed for bonding Carlisle's FleeceBACK® membranes and/or insulation to various substrates. Now featuring an HFO blowing agent, Flexible FAST Dual Tanks have improved characteristics compared to products that use an HFC blowing agent.

Flexible FAST Dual Tank Adhesive is compatible with: HP Recovery Board, InsulBase® Polyiso, SecurShield® Polyiso, SecurShield HD, SecurShield HD Plus, expanded polystyrene (EPS), extruded polystyrene (XPS), spray polyurethane foam (new or scarified SPF), DensDeck®, SECUROCK®, and StormBase®.

Compatible deck types include concrete, cellular lightweight concrete (LWC), gypsum, cementitious wood fiber, wood, and painted or galvanized steel. Flexible FAST Dual Tank Adhesive is also compatible with the following roofing materials: smooth (previously exposed) BUR, mineral cap sheets, smooth (previously exposed) or granulated mod bit, aged EPDM, aged Hypalon®, and Carlisle's VapAir Seal™ 725TR Air and Vapor Barrier.

Flexible FAST EU Dual Tanks meet the requirements for pressurized tanks for the European Union. The features, benefits, installation, storage, and precaution criteria listed on this PDS also apply to Flexible FAST EU Dual Tanks.

Features and Benefits

- » VOC free, self-contained system
- » HFO blowing agent
  - Green alternative, offering low GWPs and zero ODPs
  - Easier and more efficient splatter application; dispenses in a more uniform pattern
  - Improved coverage rates by up to 16% versus other canister based insulation and membrane adhesives
  - Improved rise and cell structure
  - Improved and more obvious string time
- » Non-penetrating, low noise, low odor
- » Superior wind uplift performance
- » Added puncture resistance of 33-50% compared to competitive two-component low-rise adhesives
- » Consistent elongation properties up to 150%
- » FM, UL, Miami Dade and Florida building approvals

Flexible FAST Dual Tank Adhesive

Coverage Rate

FleeceBACK membrane or insulation attachment to lightweight concrete, concrete, plywood and OSB, plank wood, steel, smooth BUR, mod-bit, mineral cap sheets, SPF, or multiple layers of insulation:

(Application rates may vary depending on ambient temperatures, surface, and substrate absorption rate.)

Approximate Coverage Rate (Sq. Ft.)	Splatter*	4" o.c.	6" o.c.	12" o.c.
	2,600-2,800	1,100-1,300	1,700-1,900	3,500-3,700

*Dual Tank splatter approved for membrane attachment to smooth flat surfaces only. Dual Tank splatter is not approved for insulation attachment.

May vary depending on climate, temperature, humidity, and equipment. Please consult Carlisle for project-specific bead widths and spacing.

Application

Substrate Preparation

1. The surface to which adhesive is to be applied shall be dry, free of fins, protrusions, sharp edges, loose or foreign material, oil, and grease. Depressions greater than ¼" shall be filled with adhesive or other approved patching material. All sharp projections shall be removed.
2. Seal gap between the wall/penetrations and concrete deck with VapAir Seal 725TR, Flashing Foam, or other suitable material to avoid condensation or air infiltration issues.
3. Apply Flexible FAST Dual Tank Adhesive when substrate and ambient temperature are 25°F or above.
4. Bead spacing is minimum. Depending on warranty length and wind coverage, ribbon spacing may be reduced. Refer to published specification and warranty.
5. Previously unexposed asphalt must be primed with CAV-GRIP® III.

Setup

Note: When spraying the dispensing unit for the first time, or when starting a new kit, Carlisle recommends that users trigger the gun only a quarter to halfway open until the desired output and spray pattern is achieved. This allows complete control of the flow rate and spray pattern that best fits the application.

1. Spray gloves, long sleeves, and protective glasses should be worn during setup and dispensing.
2. In colder temperatures, it is recommended to utilize heated blankets to ensure the tanks are kept warm while dispensing the product.
3. Shake kits for 15 – 20 seconds before use.
4. Connect hoses to tanks prior to opening the A and B tank valves.
5. Before attaching the nozzle to the dispensing unit, apply a generous amount of petroleum jelly to the face. This will help to prevent contamination by cured foam or chemicals and will help to keep the sealing ports clean. Detailed instructions for attaching the nozzle are included in packaging for A-side tanks.
6. **When applying Flexible FAST Dual Tank Adhesive as a bead, the 14" extension nozzle is required and must be attached to the end of the gun tip before dispensing adhesive. Attach the nozzle extension by rotating the extension tip clockwise onto the end of the gun tip.**
7. **When applying Flexible FAST Dual Tank Adhesive as a splatter application, the 14" extension nozzle should not be used. Splatter application can be achieved by triggering the gun from a distance of 2' – 3' off the deck. Adhesive should be dispersed using a horizontal back and forth motion, achieving 50% coverage of the substrate at 3.75 lbs/sq.**
8. Once the trigger is released, it MUST BE REACTIVATED WITHIN 15 SECONDS or a new nozzle must be installed. Failure to do this could result in chemical leakage, spills, or splashes which can ruin the dispensing unit and/or hoses.
9. After releasing the trigger, activate the trigger safety to prevent accidental discharge.
10. The dispensing unit face can be kept clean by using petroleum jelly on the face or using a soft cloth to remove residue.
11. **Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.**

Storage

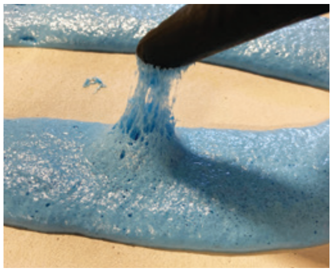
1. Close tank valves.
2. Do not store at temperatures above 100°F or below 40°F for long periods of time.
3. The used nozzle should be removed and the dispensing unit should be cleaned with a splice wipe to help keep outlet ports clean and free from any dust, dirt, or chemicals that can affect the proper sealing of the nozzle. ALWAYS engage the trigger safety and close all supply valves during storage. Do not purge adhesive from hose.
4. Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.

Flexible FAST Dual Tank Adhesive

Application of petroleum jelly to spray gun

Shaking of A-side and B-side tanks

Apply using extension nozzle



Performing the string-time test

Re-use of Dispensing Unit After Storage

1. Check the face of the dispensing unit to ensure outlet ports are clear and the face of the unit is free from dirt, chemicals, or other debris. If necessary, use a soft cloth or rag to remove any cured foam or chemicals from the face of the dispensing unit. The use of petroleum jelly is recommended to cover the face of the dispensing unit to prevent further contamination or if chemical is accidentally leaked into this area.
2. Attach a new or cleaned nozzle to the dispensing unit.
3. Shake kits for 15–20 seconds before use.

FleeceBACK Membrane Attachment
Slide-in Method:

1. Unroll FleeceBACK sheet and position. Fold the sheet back in half lengthwise (end-to-end).
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once “string time” occurs, gradually feed FleeceBACK sheet into Flexible FAST Adhesive, checking for “string/body” every few feet. Stop feeding FleeceBACK sheet into adhesive when applicator reaches adhesive that has NOT developed “string/body”. Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Roll-in (Mod Bit) Method:

1. Keeping the FleeceBACK sheet on the core, position roll of FleeceBACK membrane at the designated starting point.
2. Dispense Flexible FAST Adhesive to the substrate.
   - For splatter applications, splatter adhesive to obtain 50% coverage. Ensure end laps are protected from adhesive.
   - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
3. Once “string time” occurs, gradually roll FleeceBACK membrane into Flexible FAST Adhesive, checking for “string/body” every few feet. Stop rolling FleeceBACK into adhesive when applicator reaches adhesive that has NOT developed “string/body”. Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Insulation Attachment:

1. Dispense Flexible FAST Dual Tank Adhesive at the appropriate coverage rate. For steel decks, beads of adhesive must run parallel with, and be on top of, all of the flutes.
2. Place insulation boards (maximum 4' x 4' insulation boards when adhesive is dispensed at 12" o.c. or when boards exceed 4" thickness, or 4' x 8' insulation boards when adhesive is applied at 4", or 6" beads) into adhesive after allowing it to rise and develop “string/body”. String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.
3. Bead spacing parameters for 5, 10, 15, or 20-year 55-mph warranties: (Contact Carlisle Project Review for bead spacing on higher mph warranties and 30-year warranty projects).

Building Height	Bead Spacing (Perimeter)	Bead Spacing (Field)
0' – 25'	6" o.c. - 4'	12" o.c.
26' – 50'	6" o.c. - 8'	12" o.c.
51' – 75'	6" o.c. - 12'	12" o.c.
76' – 100'	6" o.c. - 16'	12" o.c.
101' or greater	6" o.c. - 24'	12" o.c.

4. Designate one person to walk boards into place and then roll with a 150-lb. segmented roller 5 to 7 minutes from the initial adhesive application. Boards may be temporarily weighted or relief cut where necessary to keep boards in constant contact with the adhesive until adhesive is cured.
5. At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of boards to ensure a tight bond has been created and maximum contact has been achieved.

Review Carlisle specifications and details for complete application information.

Flexible FAST Dual Tank Adhesive

Disposal Procedures:

1. Eye protection and impervious gloves MUST be worn during disposal procedures.
2. **DO NOT dispose of, puncture, or incinerate cylinder tanks while under pressure.**
3. When the job is completed or tanks are empty, pressure must be released from the tanks.
4. With the tank valves open, trigger Dual Tank gun open 100%, discharging remaining adhesive, as well as pressure and propellant, into a lined waste container.
5. After cylinders are empty of all pressure and propellant, tanks must be vented. **CAUTION: tanks could still be under pressure.**
6. Close valves and release remaining pressure from hoses. Remove hoses, flip tank upside down, and with tank valve positioned AWAY from face and others, slowly reopen tank valve and allow excess pressure and or chemical to drain into a lined waste container and allow pressure to completely vent.

   CAUTION: All pressure MUST be vented 100%. Empty tanks could contain potential vapor toxicity hazard. Provide adequate ventilation or respiratory protection (consult SDS).
7. Once cylinder is empty and vented, carefully puncture the friable disc on the top of the cylinder. Cylinders should sit for 30 minutes prior to disposal.
8. DISPOSE OF EMPTY CYLINDERS AND EXCESS CHEMICAL ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
9. For recycling information, check with local municipality, or contact Clean Earth.

Clean Earth Locations

Address	City/State/Zip	Phone Number
1689 Shar-Cal Road	Calvert City, KY 42029	270-605-2105
1750 Morgantown Industrial Park	Morgantown, WV 26501	304-292-0659
402 Webster Chapel Road	Glencoe, AL 35905	800-739-9156
30677 Huntwood Avenue	Hayward, CA 94544	510-429-1129
1733 Morgan Road	Modesto, CA 95358	510-429-1129
4132 Pompano Road	Charlotte, NC 28216	704-395-9559

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Tomball, TX

For more information on substrate compatibility, please refer to the chart found on the Flexible FAST Adhesive Product Data Sheet.

Precautions

- **Flexible FAST Dual Tank splatter application is NOT approved for walls.**
- Review the applicable Safety Data Sheet (SDS) for complete safety information prior to use.
- The foam produced is an organic material. It must be considered to be combustible and may constitute a fire hazard. Foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with prefilters and solvent-resistant cartridges if concentrations of MDI exceed the TLV or are unknown. Proper safety training is essential for all persons involved in the application process. If inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long sleeves and pants. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil.

  NOTE: Nitrile gloves are required when handling Part A directly.
- Extended storage temperatures in excess of 90°F may affect product shelf life.
- Do not store in temperatures below 40°F.
- Do not allow material to freeze.
- If the components are stored at temperatures lower than 70°F, restore to 70°F before using adhesive.
- High-slope applications require adhesive to be applied to the back of the insulation board on a flat surface.
- KEEP OUT OF THE REACH OF CHILDREN.

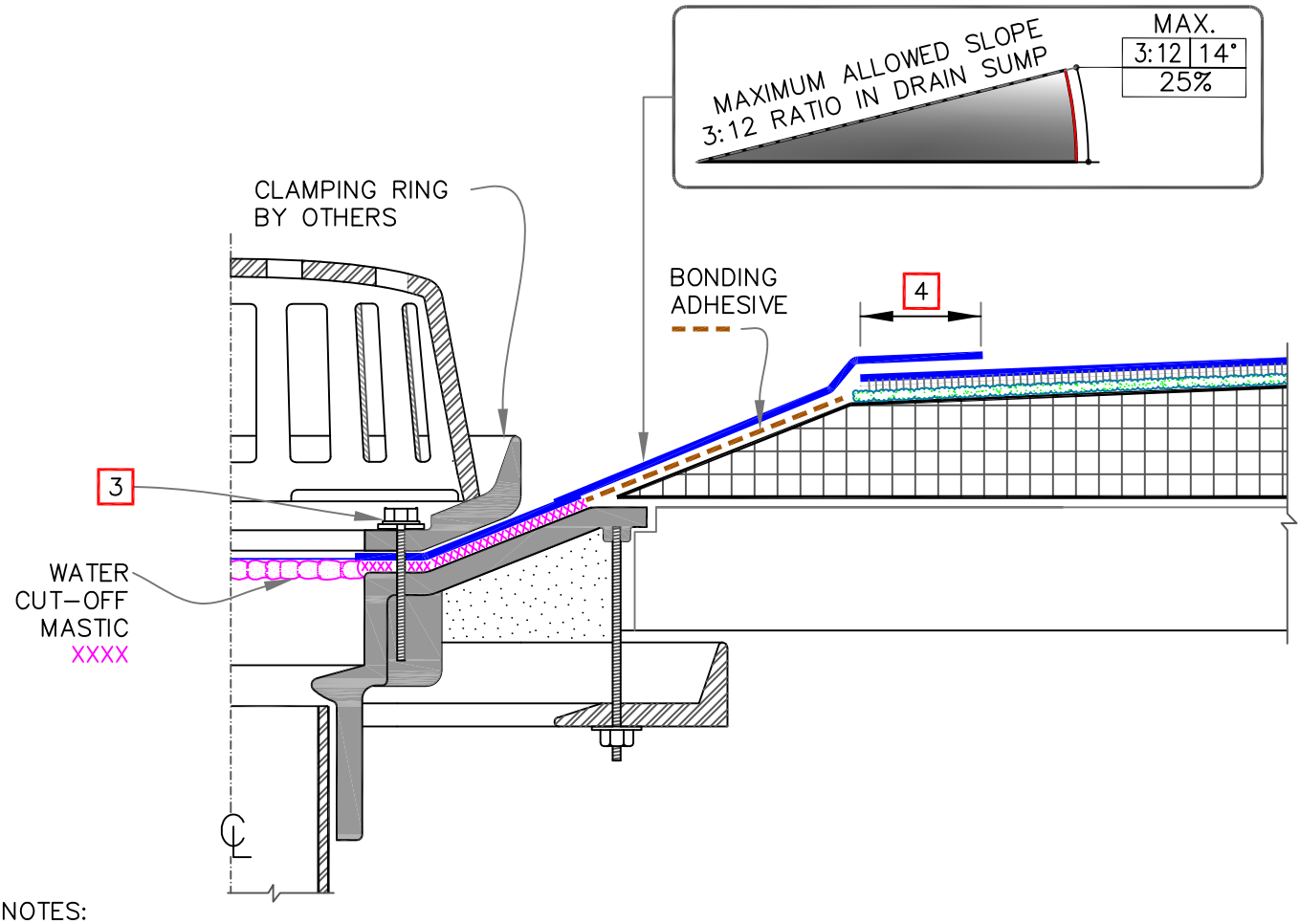
Typical Properties and Characteristics

	Dual Tank-A	Dual Tank-B
Base	Polymeric Isocyanate	Polyols, Surfactants, Catalyst
Average Net Weight	9.8 lbs/gal	9.3 lbs/gal
Packaging	62 lbs (28.1kg)	54 lbs (24.5 kg)
Shelf Life	1 year	1 year

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

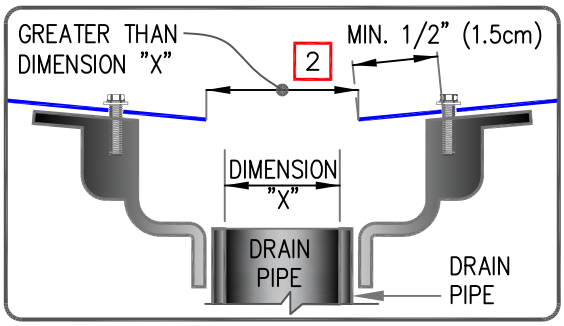
CAUTION

EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE FIELD APPLIED SecurTAPE FOR PROJECTS WITH 20, 25 & 30-YEAR WARRANTIES.



NOTES:

1. REMOVE EXISTING LEAD, FLASHING MATERIAL & ENSURE THE DRAIN RING IS COMPLETELY CLEAN DOWN TO BARE METAL.
2. THE HOLE IN THE MEMBRANE SHALL EXCEED THE DIAMETER OF THE DRAIN PIPE, BUT SHALL BE NO LESS THAN 1/2" (1.5cm) FROM THE ATTACHMENT POINTS OF THE DRAIN CLAMPING RING.
3. ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON WATER CUT-OFF MASTIC.
4. SPLICES SHALL BE COMPLETED USING MIN. 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1-1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.
5. FIELD SPLICES MUST BE LOCATED AT LEAST 6 INCHES (15cm) OUTSIDE THE DRAIN SUMP.
6. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT-EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.
7. ROOF DRAIN SIZE AND NUMBER OF DRAINS SHALL BE IN ACCORDANCE WITH THE LOCAL CODES.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S) 6

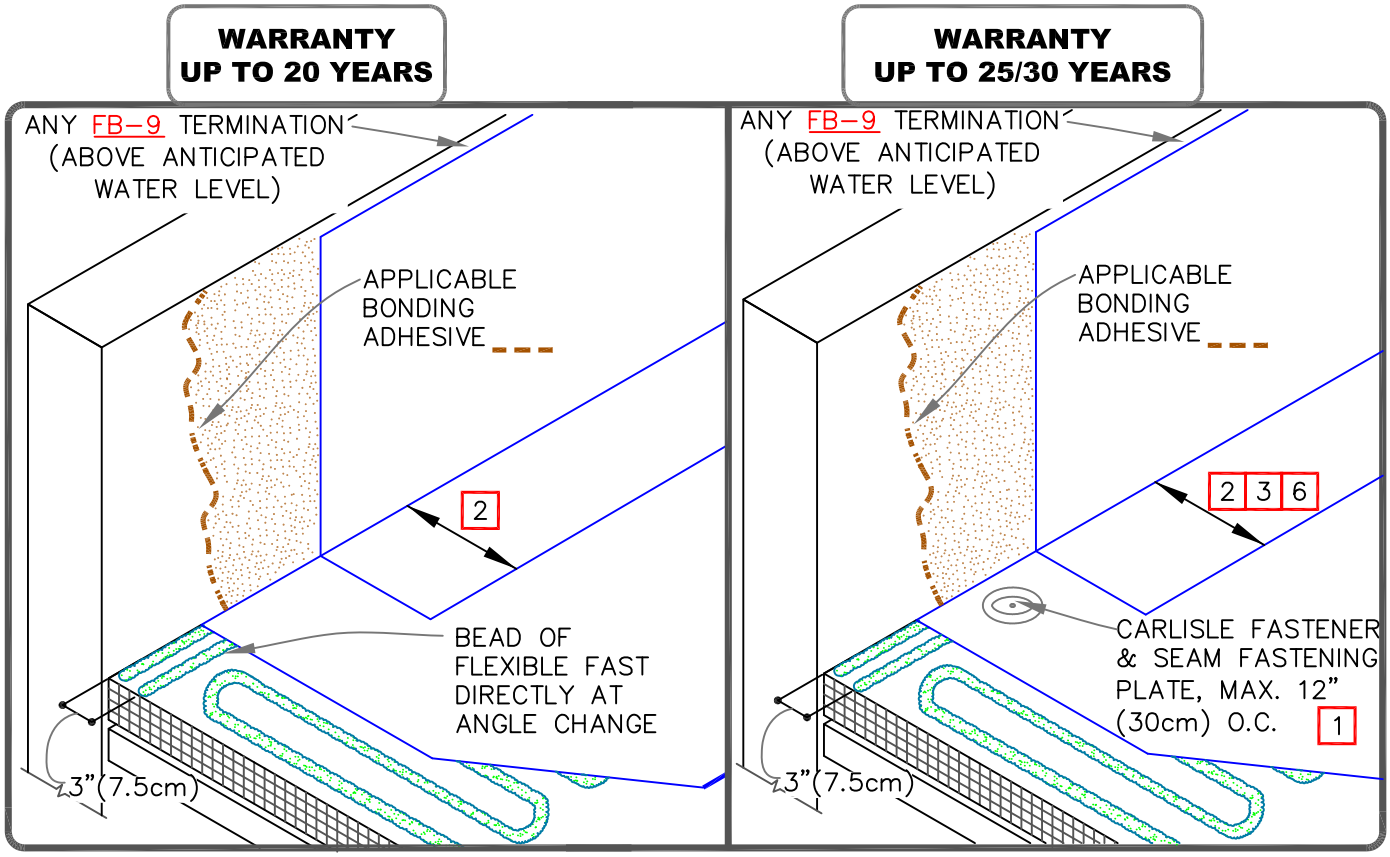
ROOF DRAIN WITH SEPARATE TARGET SPLICE

MAXIMUM WARRANTY: 30 YEARS

DETAIL NO.
FB-6B.1
FLEECEBACK ADHERED

CAUTION

REFER TO DETAIL FB–12C WHEN USING AQUA BASE 120 ADHESIVE OR HYDROBOND.



NOTES:

1. MECHANICALLY FASTENED BASE SECUREMENT IS REQUIRED WHEN ANY ONE OF THE FOLLOWING MAY OCCUR:
   - 1.1. SPECIFIED WARRANTIES GREATER THAN 20–YEARS.
   - 1.2. WARRANTY WIND SPEEDS GREATER THAN 90MPH.
   - 1.3. PROJECTS WITH CONTROL OR EXPANSION JOINTS OR ANTICIPATED BUILDING MOVEMENT.
   - 1.4. WHEN FLEECEBACK MEMBRANE IS INSTALLED DIRECTLY OVER AN EXISTING SINGLE–PLY ROOF.

2. SPLICES SHALL BE COMPLETED USING MINIMUM 3" (7.5cm) WIDE SecurTAPE/ PRIMER WITH EPDM MEMBRANE AND MINIMUM 1–1/2" (4cm) HOT AIR WELD WITH TPO/PVC/KEE HP.

3. EPDM MEMBRANE SPLICES SHALL INCORPORATE 6" (15cm) WIDE SECURTAPE FOR PROJECTS WITH 25 AND 30–YEAR WARRANTIES.

4. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT–EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.

5. WHEN USING 60 OR 80–MIL REINFORCED THERMOPLASTIC MEMBRANE FLASHING, APPLY A 4–1/2" (11cm) DIAMETER THERMOPLASTIC "T–JOINT" COVER AT ALL FIELD SPLICE INTERSECTIONS.

6. 3" AND 6" FIELD APPLIED TAPE MUST BE OUTSIDE PLATES.

7. ALL EPDM SPLICE INTERSECTIONS REFER TO FB–2 DETAILS.

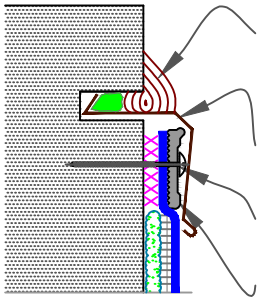
FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
10 SEE NOTE(S)

PARAPET/CURB WITH SEPARATE MEMBRANE – BEAD APPLIED

MAXIMUM WARRANTY: SEE EACH DETAIL

DETAIL NO.
FB–12A.1B
FLEECEBACK ADHERED

9A MECHANICAL TERMINATION WITH COUNTER FLASHING



CARLISLE UNIVERSAL SINGLE–PLY SEALANT OR SEALANT (BY OTHERS)

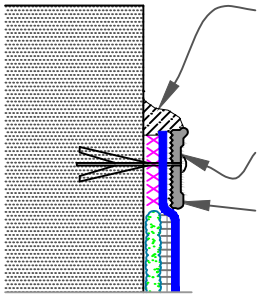
METAL COUNTER–FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

THREADED FASTENERS OR CARLISLE HP TERM BAR NAIL–IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 30 YEARS | **SEE INSET A**

9B MECHANICAL TERMINATION



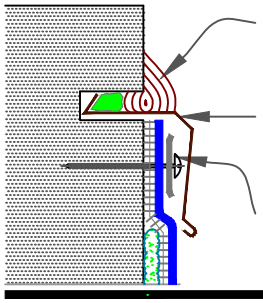
CARLISLE UNIVERSAL SINGLE–PLY SEALANT OR SEALANT (BY OTHERS)

CARLISLE HP TERM BAR NAIL–IN

CARLISLE TERMINATION BAR

WARRANTY UP TO 20 YEARS | **SEE INSET A**

9C COUNTER FLASHING TERMINATION



CARLISLE UNIVERSAL SINGLE–PLY SEALANT OR SEALANT (BY OTHERS)

METAL COUNTER–FLASHING WITH LEAD WEDGES, AS REQUIRED (BY OTHERS).

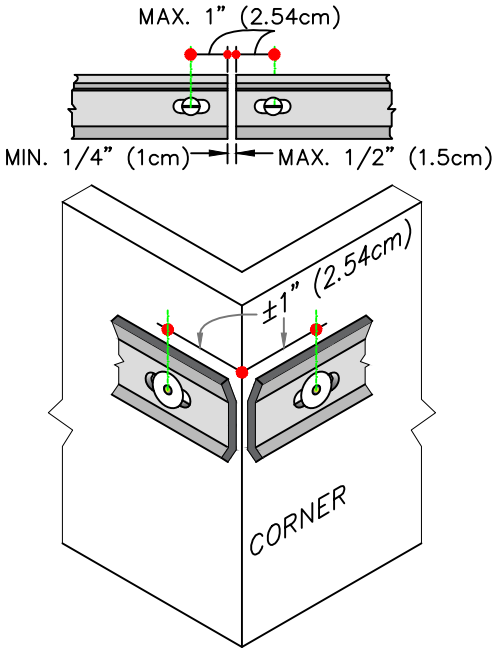
FASTEN MEMBRANE @ 12" (30cm) O.C. MAX. USE GALVANIZED WASHERS, MIN. 1", (2.54cm) DIAMETER

NOTE:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER–FLASHING, USE EPDM WASHERS, APPLY WATER CUT–OFF MASTIC UNDER THE COUNTER–FLASHING OR CAULK THE FASTENER HEADS.

WARRANTY UP TO 10 YEARS

INSET A



NOTES:

1. APPLY ON HARD SMOOTH SURFACE ONLY; NOT FOR USE ON EXPOSED WOOD.
2. DO NOT WRAP TERMINATION BAR AROUND CORNERS.
3. DETAIL 9D ON PAGE 2 OF 3 MUST BE USED AT VERTICAL JOINTS IN PANEL WALLS.

xxx WATER CUT–OFF MASTIC– MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
0 SEE NOTE(S)

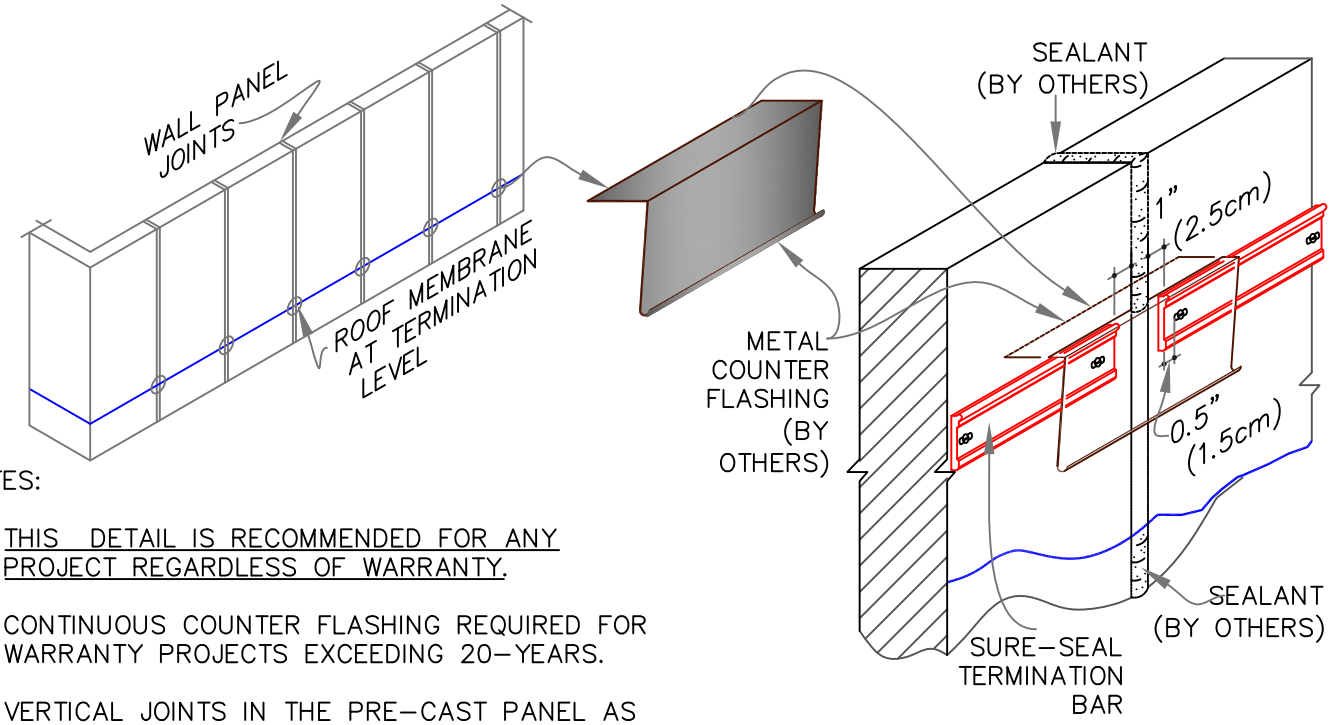
MEMBRANE TERMINATIONS (PAGE 1 OF 3)

WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB–9

FLEECEBACK ADHERED

9D MECHANICAL TERMINATION AT VERTICAL JOINTS



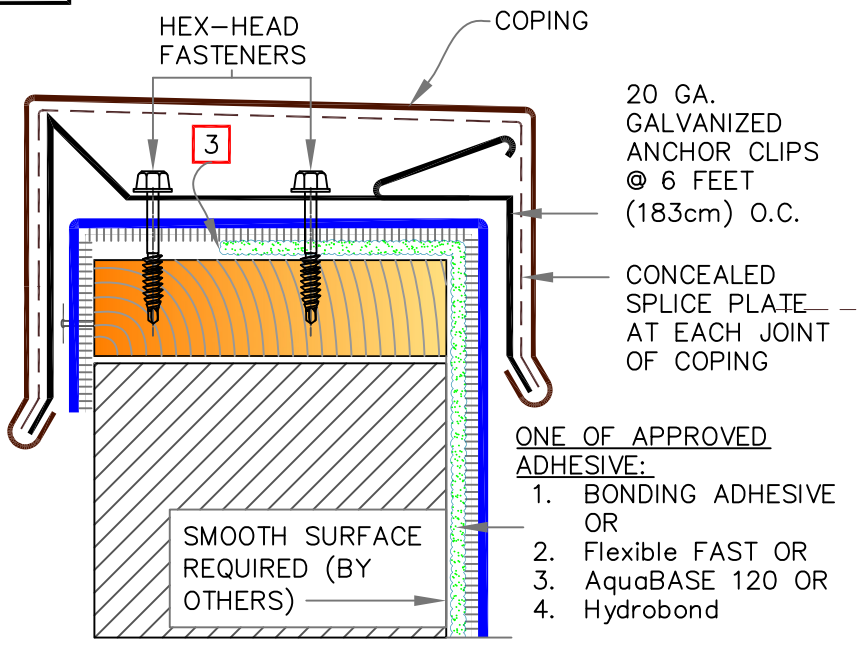
NOTES:

1. THIS DETAIL IS RECOMMENDED FOR ANY PROJECT REGARDLESS OF WARRANTY.
2. CONTINUOUS COUNTER FLASHING REQUIRED FOR WARRANTY PROJECTS EXCEEDING 20-YEARS.
3. VERTICAL JOINTS IN THE PRE-CAST PANEL AS WELL AS ALL GAPS AT THE JUNCTION OF THE TILT-UP PANEL AND ROOF DECK MUST BE FULLY SEALED TO PREVENT AIR INFILTRATION.
4. APPLY ON HARD SMOOTH SURFACE ONLY.

9E SecurEdge 200 & 300 COPINGS

NOTES:

1. MEMBRANE MUST BE EXTENDED AT CORNERS TO PROVIDE COMPLETE COVERAGE OF THE TOP WALL SURFACE. SEE 3D DETAIL 9F ON PAGE 3 OF 3.
2. REFER TO SecurEdge COPING INSTALLATION INSTRUCTION MANUAL FOR STEP-BY-STEP INSTRUCTION PROCEDURES.
3. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & TEMPORARILY SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.



FleeceBACK MEMBRANE
APPROVED ADHESIVE
APPROVED SUBSTRATE
SEE NOTE(S)

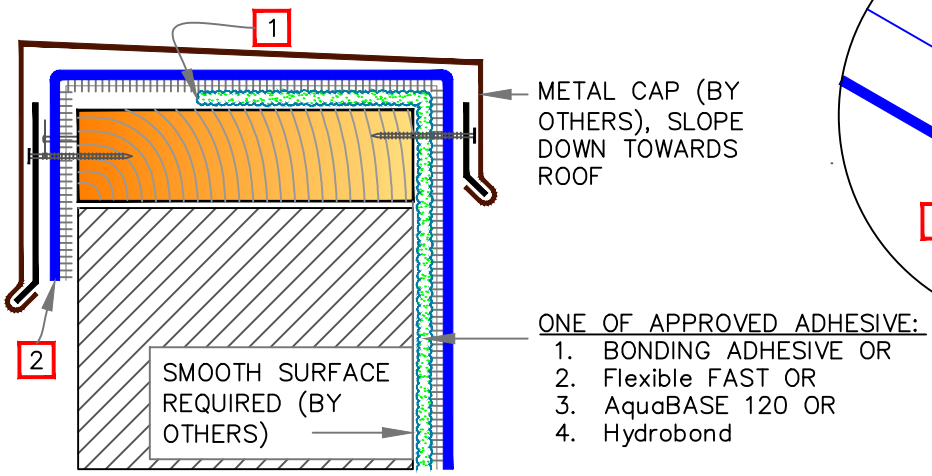
MEMBRANE TERMINATIONS (PAGE 2 OF 3)

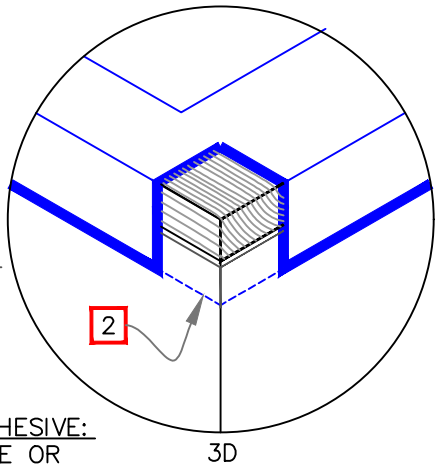
WARRANTY AS NOTES FOR EACH DETAIL

DETAIL NO. FB-9

FLEECEBACK ADHERED

9F SHEET METAL COPING (BY OTHERS)



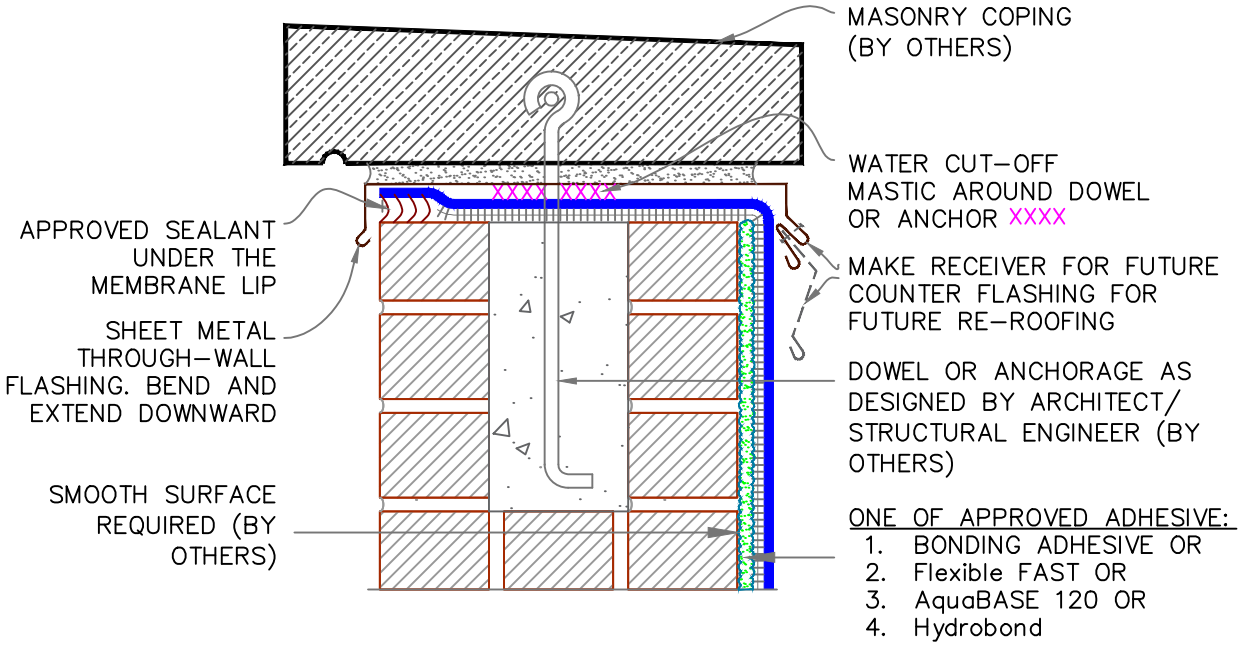


NOTES:

1. STOP ADHESIVE AT APPROPRIATE DISTANCE TO AVOID STAINING ON EXTERIOR FACE OF WALL. EXTEND THE MEMBRANE DOWN & SECURE WITH CAPPED NAILS AT 12" (30.5cm) O.C. ENSURE SEAMS ARE SEALED.

2. EXTEND THE MEMBRANE BELOW THE JOINT. AT CORNERS, MEMBRANE MUST BE EXTENDED TO PROVIDE COMPLETE COVERAGE OF WALL SURFACE.

9G MASONRY COPINGS (BY OTHERS)



XXX WATER CUT-OFF MASTIC- MUST BE HELD UNDER CONSTANT COMPRESSION.

FleeceBACK MEMBRANE APPROVED ADHESIVE APPROVED SUBSTRATE 0 SEE NOTE(S)	MEMBRANE TERMINATIONS (PAGE 3 OF 3) MAXIMUM WARRANTY: 30 YEARS	DETAIL NO. FB-9 FLEECEBACK ADHERED

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Carlisle SynTec Systems, a division of Carlisle Construction Materials LLC.
1285 Ritner Highway
Carlisle, PA 17013

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.
This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Carlisle Sure-Weld Single Ply TPO Roof Systems over Lightweight Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews NOA# 23-0410.08 and consists of pages 1 through 23.
The submitted documentation was reviewed by Alex Tigera.

08/15/24

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	TPO
Deck Type:	Lightweight Concrete Decks
Maximum Design Pressure	-492.5 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Sure-Weld FleeceBACK	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 100, 115 and 135 mils.
Sure-Weld AFX	various	TAS 131	Reinforced white or colored TPO membrane with fleece backing. Total sheet thicknesses available are 120, 135 and 155-mils.
Sure-Weld	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thicknesses are 45 and 60-mils.
Sure-Weld EXTRA	various	TAS 131	Reinforced white or colored TPO membrane. Available sheet thickness is 80-mils.
Sure-Weld HS	various	TAS 131	Reinforced white or colored FR TPO membrane. Available sheet thicknesses are 45, 60 and 80-mils.
Sure-Weld SAT	Various	TAS 131	Self-Adhered Reinforced TPO Membrane. Available sheet thickness is 60-mil.
FAST 100 LV Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive
FAST Dual Cartridge Adhesive	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
FAST Bag in a Box Adhesive	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Adhesive	15& 50-gal. drum	TAS 110	Two-part, low rise polyurethane adhesive

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product Name	Dimensions	Test Specifications	Product Description
Flexible FAST Dual Cartridge	Dual Cartridge	TAS 110	Two-part, low rise polyurethane adhesive
Flexible FAST Bag In A Box	Bag-In-A-Box	TAS 110	Two-part, low rise polyurethane adhesive
Sure-Weld Bonding Adhesive	5-gal. pail	TAS 110	Solvent-based bonding adhesive.
Aqua Base 120 Bonding Adhesive	5-gal. pail	TAS 110	Water-based bonding adhesive
Cold Applied Adhesive	5-gal. pail	TAS 110	Asphalt-modified Polyether adhesive

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
Polyisocyanurate HP-H	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
SecurShield HD Composite	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
H-Shield	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with fiber reinforced facers.	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-Shield CG	Rigid-roof insulation panel comprised of closed cell Polyisocyanurate foam core with coated glass facers	Hunter Panels, a div of Carlisle construction Materials, LLC.
H-shield HD Composite CG	Rigid-roof composite insulation panel comprised of closed cell Polyisocyanurate foam core and high-density cover board.	Hunter Panels, a div of Carlisle construction Materials, LLC.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	HPX Fastener	Truss head, self-drilling, drill point, high thread fastener for use into steel and wood decks	#15 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
2.	InsulFast Fastener	Carbon steel fastener for use into steel and wood decks	#12 wire diameter with a #3 Philips drive	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
3.	Piranha Plate	Steel stress plate used with HPX Fastener for attachment of membrane	2-3/8 inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.
4.	Insulation Fastening Plate	Galvalume plated steel stress plate with reinforcing ribs	3-inch diameter	Carlisle Syntec, a div of Carlisle construction Materials, LLC.

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
Atlantic & Caribbean Roof Consulting, LLC.	11-034	TAS 114 Appendix D	06/28/11
	11-035	TAS 114 Appendix D	06/28/11
	11-037	TAS 114 Appendix D	06/29/11
	15-002	TAS 114 Appendix D	03/30/15
	15-008	TAS 114 Appendix D	04/02/15
	15-009	TAS 114 Appendix D	04/06/15
	15-041	TAS 114 Appendix D	12/30/15
	15-043	TAS 114 Appendix D	01/04/16
Architectural Testing Inc.	ATI-37490.01	Membrane Brittleness Testing	7/7/00
Factory Mutual Research Corp.	3022174	Wind Uplift and Fire Classification	09/25/06
	3Z9A1.AM	Wind Uplift and Fire Classification	10/15/97
	1B7A5.AM	Wind Uplift and Fire Classification	02/23/98
	Approval Guide Excerpt	Wind Uplift and Fire Classifications Listings	5/00
	3011220	Class 4470	08/16/01
	3012879	Class 4470	04/04/03
Celotex Corporation Testing Services	520257	Membrane Physical Property Testing	4/19/00
SGS U.S. Testing Company Inc.	131248-R2	Membrane Ozone Resistance Testing	1/6/00
Trinity ERD	C46470.07.14-1A	TAS 131	07/16/14
	C46470.07.14-1B	TAS 131	07/16/14
	C46470.07.14-2A	TAS 131	07/30/14
	C46470.07.14-4-R1	TAS 131	07/21/14
	4r-CRL-20-SSTHP-.02.D	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.C	TAS 131	04/27/21
	4-CRL-18-002.04.18-2A	TAS 131	04/30/18
	4r-CRL-20-SSTHP-02.B.R2	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.02.A	TAS 131	04/27/21
	4r-CRL-20-SSTHP-.03.A	TAS 131	04/27/21

DECK STRESS ANALYSIS CALCULATIONS/REPORTS

Engineer/Agency	Identifier	Assemblies:	Date
Randall Fowler P.E.	Letter	E(1), E(2)	04/30/15

APPROVED ASSEMBLIES

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(1): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied to the substrate only at a rate of 120 ft^2/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld AFX membrane adhered to the insulation Cold Applied Adhesive. The adhesive is applied to the substrate only at a rate of 67 ft²/gallon. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -340 psf (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4I: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi. over structural concrete

System Type A(2): One or more layers of insulation adhered with Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive. Membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
Polyisocyanurate HP-H, SecurShield, SecurShield HD Composite, H-Shield, H-Shield CG, H-Shield HD Composite CG		
Minimum 1" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the deck with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive at a rate of 1 gal./sq., full coverage. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the insulation using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft^2/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel.

System Type E(1): Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type E(2): Membrane mechanically fastened through lightweight concrete to steel deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized, 55 ksi steel deck attached to steel supports spaced at a maximum of 6-ft o.c. with 5/8-inch diameter puddle welds at the bottom of each flute. Metal deck side laps are fastened with #12 SD screws spaced 12-inch on center.

This Tested Assembly has been analyzed for allowable deck stress. See Evidence Submittted Table.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: 10-foot wide Sure-Weld or Sure-Weld EXTRA membrane mechanically fastened 6-inches on center using Carlisle HP-X Fasteners and Piranha Plates. Membrane shall be fastened through the lightweight concrete and into the steel deck. Overlap membrane splices a minimum of 5-1/2 inches to provide for a minimum 1-1/2 inch heat weld. End laps shall be overlapped a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -67.5 psf.; (See General Limitation #7)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete, Non-insulated, over Steel Deck

Deck Description: Celcore Cellular Lightweight Concrete, minimum 300 psi., over steel or structural concrete.

System Type F(1): Membrane adhered to lightweight concrete deck

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 18-22 ga. 33 ksi steel deck

Membrane: Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq. full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf. (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Celcore Lightweight Insulating Concrete, minimum 300 psi. over structural concrete.

System Type F(2): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Or
Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -232.5 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-135 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-82.5 psf; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Range II Lightweight Insulating Concrete, minimum 300 psi.over structural concrete.

System Type F(3): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Aqua Base 120 Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 120 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Or

Sure-Weld FleeceBACK membrane fully adhered to the lightweight concrete using FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied at a rate of 1 gal/sq., full coverage. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -90 psf.; Sure-Weld FleeceBACK adhered with FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive.

-67.5 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Sure-Weld Bonding Adhesive

-90 psf.; Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS adhered with Aqua Base 120 Bonding Adhesive

(See General Limitation #9 for all options)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(4): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Elastizell Cellular Lightweight Concrete, minimum 324 psi over steel or structural concrete.

System Type F(5): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55ksi steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(6): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Concrecel Cellular Lightweight Concrete, minimum 360 psi over structural concrete.

System Type F(7): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Concrecel Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Concrecel Cellular Lightweight concrete, minimum 360 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -217.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(8): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -492.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 323 psi Generic Cellular Lightweight Concrete over steel or structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 147.971 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(9): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete or minimum 22 ga. vented corrugated 1-1/2 inch, WR Type B, G90 galvanized 55 ksi. steel deck.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch above the top deck rib. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 323 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle Flexible FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 6 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -250 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(10): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.

Membrane: Sure-Weld, Sure-Weld EXTRA or Sure-Weld HS membrane fully adhered to the lightweight concrete using Sure-Weld Bonding Adhesive. The adhesive is applied in a contact application and is applied to both the underside of the roofing membrane and the top side of the approved substrate at a rate of 60 ft²/gallon, finished surface area. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -452.5 psf.; (See General Limitation #9)

Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 4: Lightweight Concrete

Deck Description: Minimum 353 psi Generic Cellular Lightweight Concrete over structural concrete. Lightweight concrete shall record a Minimum Characteristic Resistance Force (MCRF) of 100.92 lbf when tested with OMG 1.7 inch base sheet fasteners.

System Type F(11): Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck: Minimum 2500 psi structural concrete.

Lightweight Concrete: The deck is filled with a slurry coat of Generic Cellular Lightweight Concrete, minimum 300 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Generic Cellular Lightweight concrete, minimum 353 psi.

Membrane: Sure-Weld FleeceBACK membrane adhered to the lightweight concrete using Carlisle FAST 100 LV, FAST Dual Cartridge, FAST Bag in a Box Adhesive or Flexible FAST, Flexible FAST Dual Cartridge, Flexible FAST Bag In A Box Adhesive applied in ½ to ¾ inch wet beads spaced 12 inch on center. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.

Maximum Design Pressure: -217.5 psf.; (See General Limitation #9)

Membrane Type:	Single Ply, Thermoplastic, TPO
Deck Type 4:	Lightweight Concrete
Deck Description:	Elastizell Cellular Lightweight Concrete, minimum 324 psi over structural concrete.
System Type F(12):	Membrane adhered to lightweight concrete.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Deck:	Minimum 3000 psi structural concrete.
Lightweight Concrete:	The deck is filled with a slurry coat of Elastizell Cellular Lightweight Concrete, minimum 250 psi, to a depth of 1/8 inch. **(Optional)** EPS Holey Board with 3" diameter holes is placed into the slurry, followed by a minimum 2" thick pour of Elastizell Cellular Lightweight concrete, minimum 324 psi.
Membrane:	Sure-Weld SAT (Self-Adhered Technology) membrane fully adhered to the lightweight concrete. Overlap membrane splices a minimum of 2 inches to provide for a minimum 1-1/2 inch heat weld.
Maximum Design Pressure:	-282.5 psf.; (See General Limitation #9)

LIGHTWEIGHT INSULATING CONCRETE SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.

3. For Systems where specific lightweight insulating concrete si referenced consult current lightweight insulating concrete NOA for specific deck construction and limitations. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
11. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE

MIAMI LAKES
Growing Beautifully

Address: 14001 NW 82 AVE	
Folio #: 3220220400020	
MDC Process #: M202502 1257	
MDC Tracking #: 322502 1257	
Job Description: NEW ROOF ON NEW ADDITION CONCRETE DECK	

Master Permit #: BLC2024-0975 Sub Permit #: SRF2025-2102 Revision #:

OFFICE USE ONLY

	Approved	Date	Disapproved		Approved	Date	Disapproved		Approved	Date	Disapproved
☑ ZONING				BUILDING				STRUCT.			
	Date				Date				Date		
	Initials				Initials				Initials		
☑ ROOFING				ELECT.				MECH.			
	Date				Date				Date		
	Initials				Initials				Initials		
PLUMBING				FLOOD							
	Date				Date				Date		
	Initials				Initials				Initials		

PLANS CHECKED-OUT

	DATE	NAME

PLANS CHECKED-IN

	DATE	NAME

	AMOUNTS
BASE PERMIT	
ZONING FEE	
CODE COMPLIANCE FEE	
TECHNOLOGY FEE	
DBPR SURCH. STATE	
DBPR SURCH. BUILDING	
SCANNING FEE	
WORK W/O PERMIT FEE	
UPFRONT FEE PAID	
BALANCE DUE:	

Issuing Clerk: Date: / /

MIAMI LAKES
Growing Beautifully

6601 Main St • Miami Lakes, Florida, 33014
Office: (305) 827-4015 • Fax: (305) 558-9884
Website: www.miamilakes-fl.gov

BUILDING PERMIT APPLICATION

Job Address: 14001 NW 82 AVE
Unit #:
Folio #: 32- 2022-040-0020 Owner-Builder: ☐

Master Permit #: BLC2024.0975 Sub Permit #: SRF2025-2102 Revision #: _____

OWNER INFORMATION

NAME : TGC LL8 LLC
C/O GRAHAM COMPANIES
Address: 6843 MAIN ST
City, State, Zip Miami Lakes, FL 33015
Phone #: Cell #:
Email Address:

CONTRACTOR INFORMATION

Company Name: Nations Roof Sunshine State
Qualifier Name: Ian Alan Brenner
License # CCC1331270
Address 691 Garden Commerce Pky STE 170
City, State, Zip Winter Garden, FL 34787
Phone #: 407-649-1333 Cell #:
Email Address: Permitfl@nationsroof.com

LEGAL USE/ WORK

Current Use of Property: 7343 HOSPITAL - PRIVATE : HEALTH CARE
Job Description
Install new roof on new addition (CONCRETE DECK)

JOB COST $ 60,000 AREA/LENGTH: 60,000 SF/LF

Residential ☐ Multi-Family ☒ Commercial ☐ Industrial ☐
Code in Effect:
Occupancy:
Construction Type:
Flood Zone/B.F.E.: F.F.E.:

ARCHITECT/ ENGINEER

Firm Name:
A/E of record:
License #
Address
City, State, Zip
Phone #: Cell #:
Email Address:

Permit Type -- Check only One

☐ Building ☐ Electrical ☐ Mechanical ☐ Plumbing/Gas
☐ Paving/Drainage ☐ Sign ☒ Roofing ☐ P/W

Change to Permit -- Check only One

☐ Extension ☐ Renewal ☐ Revision
☐ Change Contractor ☐ Shop Drawing ☐ Cancellation

Application is hereby made to obtain a permit to do work and installation as indicated. I certify that no work or installation has commenced prior to the issuance of a permit and that all work will be performed to meet the standards, of all laws regulating construction in this jurisdiction. I understand that a separate permit must be secured for ELECTRICAL WORK, MECHANICAL, PLUMBING, SIGNS, WELLS, POOLS, RE-ROOFING, SHUTTERS, WINDOWS, FURNACES, BOILERS, HEATERS, TANKS, and AIR CONDITIONERS, etc. I understand that in signing this application I am responsible for the supervision and completion of the construction including scheduling of inspections and obtaining final inspections in accordance with the plans and specification WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR ATTORNEY OR LENDER BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT. OWNER/CONTRACTOR AFFIDAVIT: I Certify that all the foregoing information is accurate and that all work will be done in compliance with all applicable laws regulating construction and zoning.

X _____ Date _____
Signature of Owner or Owner's Agent

Print Name of Owner or Owner's Agent

STATE OF _____ COUNTY OF _____

Sworn to and subscribed before me this _____ 20___

by _____ (SEAL)

Personally known ☐ or I.D. _____

X _____ Date 7/24/2024
Signature of Qualifier
Ian Alan Brenner
Print Name of Qualifier

STATE OF FL COUNTY OF Brevard

Sworn to and subscribed before me this July 24 2024

by Ian Alan Brenner

Personally known ☑ or I.D. _____

Kristen Montemurro
Notary Public
State of Florida
Comm# HH158830
Expires 7/29/2025

NOTICE: In addition to the requirements of this permit, there may be additional deed restrictions enforced by the homeowner's associations that may be applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies, or federal agencies.

THIS PERMIT APPLICATION will be void if there are no reviews after six(6) months.