



EVALUATION REPORT

FLORIDA BUILDING CODE, 8TH EDITION (2023)

Manufacturer: COOLEY GROUP
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Manufacturing Plants: Pawtucket, RI
Lancaster, SC

Quality Assurance: UL LLC (QUA9625)

SCOPE

Category: Roofing
Subcategory: Single Ply Roof System
Code Edition: Florida Building Code, 8th Edition (2023) including High-Velocity Hurricane Zones (HVHZ)
Code Sections: 1504.3.1, 1504.6, 1515.1.1, 1515.1.4, 1515.2.4, 1523.1.1, 1523.6.2
Properties: Wind Resistance, Physical Properties

REFERENCES

<u>Entity</u>	<u>Report No.</u>	<u>Standard (Year)</u>
FM Approvals (TST1867)	3024518	FM 4470 (2016) ¹
FM Approvals (TST1867)	3053693	FM 4470 (2016) ¹
		FM 4474 (2011)
PRI Construction Materials Technologies (TST5878)	TRE-085-02-01	TAS 110 (2000)
PRI Construction Materials Technologies (TST5878)	1702T0003	TAS 110 (2000)
PRI Construction Materials Technologies (TST5878)	1702T0004	ASTM D 6878 (2021)

¹Deemed to comply with TAS 114 (2011) in accordance with Section 7.3.2

PRODUCT DESCRIPTION

Products	Specification	Description
CSP™-TPO PLUS 45	TAS 110	45-mil thick thermoplastic polyolefin, heat-weldable, single-ply roof membrane with Aramid/Knit polyester reinforcement
CSP™-TPO PLUS 60	TAS 110	60-mil thick thermoplastic polyolefin, heat-weldable, single-ply roof membrane with Aramid/Knit polyester reinforcement
CSP™-TPO PLUS 80	TAS 110	80-mil thick thermoplastic polyolefin, heat-weldable, single ply roof membrane with Aramid/Knit polyester reinforcement

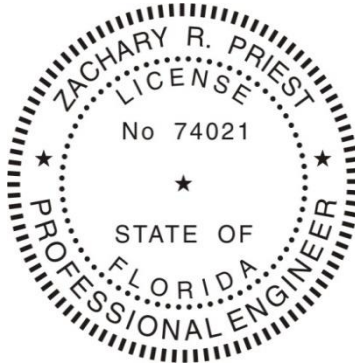
LIMITATIONS

1. Fire classification is not within the scope of this evaluation.
2. Foam plastic insulation shall be separated from the building interior in accordance with the FBC 2603.4 and 2603.6.
3. The roof deck and the roof deck attachment information are provided based on testing. FBC requirements for the rational design of the roof deck, including the attachment, are not within the scope of this evaluation.
4. In the HVHZ, fastener spacing for insulation attachment is determined using a Minimum Characteristic Force (F') of 275 lbf as demonstrated via testing to TAS 105. If the field tested fastener value is below 275 lbf, then insulation attachment shall not be acceptable.
5. In the HVHZ, fastener spacing for base sheets or membrane attachment shall meet the minimum fastener resistance value and the *MDP* for the specified assembly. It is permissible for a qualified professional to submit a revised fastener spacing utilizing the withdrawal resistance value obtained from TAS 105 testing and calculations performed in accordance with RAS 117 and/or RAS 137, when the fastener resistance is found less than required.
6. In the HVHZ, if mechanical attachment through the lightweight insulating concrete to the structural deck is proposed, a field fastener withdrawal test shall be conducted in compliance with TAS 105 to determine equivalent or increased attachment densities. Revised fastener densities shall be submitted utilizing the withdrawal resistance value obtained from TAS 105 testing and calculations performed in accordance with RAS 117 and/or RAS 137.
7. **HVHZ:** For assemblies containing mechanical attachment, the allowable uplift pressure for the selected assembly shall meet or exceed the minimum design loads as determined in accordance with the FBC Chapter 16. The attachment density may be increased by a qualified design professional, as necessary, to meet the design pressure requirements in the periphery zones. Calculations shall be conducted in compliance with RAS 117 and/or RAS 137.
Non-HVHZ: For assemblies containing mechanical attachment or adhered in ribbon-applied adhesive, the allowable uplift pressure for the selected assembly shall meet or exceed the minimum design loads as determined in accordance with the FBC Chapter 16. The attachment density may be increased by a qualified design professional, as necessary, to meet the design pressure requirements in the periphery zones. Calculations shall be conducted in compliance with RAS 117, RAS 137, or Section 2.2.10.1 FM LPDS 1-29 (February 2020).
8. Reroofing applications shall be examined in accordance with FBC Section 1511 outside of the HVHZ and FBC Section 1521 within the HVHZ. For mechanically fastened systems, a field withdrawal resistance test (TAS 105 in the HVHZ; ANSI/SPRI FX-1 or TAS 105 in the non-HVHZ) shall be conducted by a qualified professional to ensure the fastener meets the minimum design load requirements of the system. For adhered systems, a field uplift resistance test (TAS 124 in the HVHZ; ASTM E 907, FM LPDS 1-52, ANSI/SPRI IA-1, or TAS 124 in the non-HVHZ) shall be conducted to confirm conformance of the existing to the minimum design loads.
9. **HVHZ:** For assemblies containing fully adhered or ribbon adhered attachment, or where extrapolation of the assembly is not permitted, the *MDP* for the selected assembly shall meet or exceed the minimum design loads as determined in accordance with the FBC Chapter 16 without augmentation.
Non-HVHZ: For assemblies adhered in ribbon-applied adhesive, the allowable uplift pressure for the selected assembly shall meet or exceed the minimum design loads as determined in accordance with the FBC Chapter 16. The attachment density may be increased by a qualified design professional, as necessary, to meet the design pressure requirements in the periphery zones. Calculations shall be conducted in compliance with Section 2.2.10.1 FM LPDS 1-29 (July 2022).
10. Installation of the evaluated products shall comply with this report, the FBC, and the manufacturer's published application instructions. Where discrepancies exist between these sources, the more restrictive and FBC compliant installation detail shall prevail.
11. The minimum roof slope shall be 1/4:12 for new construction.
12. All products listed in this report shall be manufactured under a quality assurance program in compliance with Rule 61G20-3.



COMPLIANCE STATEMENT

The products evaluated by Zachary R. Priest, P.E. herein have demonstrated compliance with the Florida Building Code, 8th Edition (2023) including High-Velocity Hurricane Zones (HVHZ) as evidenced in the referenced documents submitted by the named manufacturer.



This item has been
digitally signed and
sealed by Zachary R.
Priest, PE, on 8/30/2023.

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Digitally signed by Zachary R. Priest
CREEK Technical Services, LLC

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Zachary R. Priest, P.E.
Florida Registration No. 74021
Organization No. ANE9641

CERTIFICATION OF INDEPENDENCE

CREEK Technical Services, LLC does not have, nor will it acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

CREEK Technical Services, LLC is not owned, operated, or controlled by any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

APPENDICES

- 1) APPENDIX A – Installation (1 pages)
- 2) APPENDIX B – Nomenclature and Approved Assemblies (3 pages)



INSTALLATION

Note - Refer to the [APPROVED ASSEMBLIES](#) section of this report for specific installation details of a selected assembly.

Unless otherwise specified in this report the following installation details shall be met for the named products:

Component	Product	Installation Detail
Fasteners & Plates	OMG #12 Standard Roofgrip Fastener	#12 screw; Min. 3/4-inch penetration through the top rib of the steel deck
	OMG #15 Roofgrip Fastener	#15 screw; Min. 3/4-inch penetration through the top rib of the steel deck
	OMG CD-10 Fastener	Carbon steel, expansion fastener for use in structural concrete decks; Min. 1.25" embedment into min. 3" thick structural concrete
	OMG Heavy Duty Fastener	#14, high tread screw; Min. 3/4-inch penetration through the top rib of the steel deck; Min. penetration 1-inch into concrete deck
	OMG Super XHD Fastener	#21, high tread screw; Min. 3/4-inch penetration through the top rib of the steel deck
	OMG XHD Roofing Fastener	#15, high tread screw; Min. 3/4-inch penetration through the top rib of the steel deck
	OMG 2-3/8-inch Barbed XHD Plate	2-3/8-inch diameter galvanized steel stress plate
	OMG 2-3/4-inch Super XHD Barbed Plate	2-3/4-inch diameter galvanized steel stress plate
	OMG 3-inch Round Galvalume Steel Plate	3-inch diameter Galvalume coated steel plate
	OMG 2-3/4-inch Eye Hook Seam Plate	2-3/4-inch diameter Galvalume coated steel plate with eyehooks
Insulation/Cover Boards	Atlas ACFoam-II	Min. 1-inch thick; Min. 20 psi; Adhered boards shall be a maximum 4 ft. x 4 ft.
	Atlas ACFoam Tapered	Min. 0.5-inch to start with a variety of taper slopes; Adhered boards shall be a maximum 4 ft x 4 ft
	Firestone ISO 95+ GL	Min. 0.5-inch thick; Min. 20 psi; Adhered boards shall be a maximum 4 ft. x 4 ft.
	Firestone ISOGARD HD Composite	Min. 1.5-inch thick; Adhered boards shall be a maximum 4 ft. x 4 ft.
	Georgia-Pacific DensDeck	Min. 0.25-inch thick
	Hunter Panels H-Shield	Min. 1-inch thick; Min. 20 psi; Adhered boards shall be a maximum 4 ft. x 4 ft
	JM ENRGY 3	Min. 1/2-inch thick; Min. 20 psi; Adhered boards shall be a maximum 4 ft x 4 ft
Membrane Adhesives	Cooley Bonding Adhesive	Fully adhered at rate of 1 gal/sq; Applied simultaneously to underside of membrane and substrate
Single-Ply Membrane	CSP™-TPO PLUS 45	Min. 2-inch wide heat welded side laps; In-lap fastened systems shall have min. 6-inch wide side-laps with min. 2-inch wide heat weld; Side-laps shall be installed perpendicular to the direction of the steel deck ribs for mechanically attached systems
	CSP™-TPO PLUS 60	
	CSP™-TPO PLUS 80	

NOMENCLATURE

The following naming conventions are utilized to specify products in the [APPROVED ASSEMBLIES](#) section of this report. Refer to the nomenclature below when deciphering the allowable products for use in the selected assembly. Installation requirements shall be as noted in the [APPROVED ASSEMBLIES](#) section of this report.

Name	Definition		
Approved Insulation	One or more layers or combinations of roofing insulation listed in this report or <i>approved</i> under rule 61G20-3, such as gypsum, perlite, polyisocyanurate, polystyrene, or wood fiberboard. Insulation shall be preliminarily secured unless otherwise noted.		
As Tested	Information provided to the report user based on the as tested condition of the roof system		
CBA	Cooley Bonding Adhesive		
CD Fasteners & Plates	OMG CD-10 fasteners and OMG 2-3/8" Barbed XHD Plate		
CSP-TPO	One ply of any one of the following products: 45-mil thick, 60-mil thick, or 80-mil thick CSP™-TPO <i>PLUS</i>		
Deck Detail	As Tested deck construction details are described as follows:		
	Concrete Deck	Min. f'_c = 2,500 psi at 28 days	
	Steel Deck	Min. 22 ga, Wide Rib Deck (Type WR) conforming to ANSI/SDI-RD1.0 & FBC; 0.5% Vented and ASTM A653 G90 for LWIC applications only. The following nomenclature is used to further describe the As Tested condition.	
		F<#>	<#> #12-24 HWH self-drilling screws or equivalent fastener at each flute used to secure the deck to the structural supports; Min. 0.25-inch penetration
		G<#>	Min. Grade <#> of Steel Deck
		L<#>	Max. span of <#> ft.
		S<#>	1/4 "-14 HWH x7/8" self-drilling screws or equivalent fastener secured <#>-inch o.c. along the panel side laps
HD Fasteners & Plates	OMG Heavy Duty Fastener and OMG 2-3/8-inch Barbed XHD Plate		
MDP	Maximum Design Pressure		
OMG Fasteners and Plates	OMG #12 Standard Roofgrip Fastener and OMG 3-inch Galvalume Steel Plates		
Preliminarily Secured	Fastened at minimum rate of 5 per 4 ft. x 8 ft. board or 4 per 4 ft. x 4 ft. board.		
SXHD Fasteners & Plates	OMG Super XHD fasteners and OMG 2-3/4-inch Super XHD Barbed Plate		
XHD Fasteners & Plates	OMG XHD fasteners and OMG 2-3/8-inch Barbed XHD Plate		

APPROVED ASSEMBLIES

The following notes shall be observed when using the assembly tables below.

1. Allowable pressures were calculated using a 2:1 margin of safety.
2. Refer to [LIMITATIONS](#) and [NOMENCLATURE](#) sections of this evaluation when using the table(s) below.
3. Refer to [INSTALLATION](#) section of this report for installation detail when the information is not explicitly stated for the selected assembly.
4. The on-center (o.c.) spacing given is the maximum allowable attachment spacing for the rated system.
5. As *Tested* information for roof deck construction is provided for information only. The addition of the *As Tested* deck information does not obviate the requirement for rational design of the roof deck and roof deck attachment in accordance with FBC requirements.

Assembly System Numbers and Definitions	
C-M-#	Mechanically Fastened Assemblies over <i>Concrete Deck</i> (New or Existing)
S-AM-#	Assemblies with Adhered Membranes over Insulated <i>Steel Deck</i> (New, Existing or Recover)
S-M-#	Mechanically Fastened Assemblies over <i>Steel Deck</i> (New or Existing)

Mechanically Fastened Assemblies over <i>Concrete Deck</i> (New or Existing)							
System No.	Base Insulation	Base Insulation Attachment	Top Insulation	Top Insulation Attachment	Membrane	Membrane Attachment	MDP (psf)
C-M-1	-	-	<i>Approved Insulation</i>	<i>Preliminarily Secured or secured with top layer</i>	CSP-TPO	Attached in-lap 6-inch o.c. with HD Fasteners & Plates or CD Fasteners & Plates; Fastener rows 114-inch o.c	-45 (Lim. 7)
C-M-2	-	-	<i>Approved Insulation</i>	<i>Preliminarily Secured or secured with top layer</i>	CSP-TPO	Attached in-lap 12-inch o.c. with HD Fasteners & Plates or CD Fasteners & Plates; Fastener rows 90-inch o.c	-45 (Lim. 7)
C-M-3	-	-	<i>Approved Insulation</i>	<i>Preliminarily Secured or secured with top layer</i>	CSP-TPO	Attached in-lap 6-inch o.c. with HD Fasteners & Plates or CD Fasteners & Plates; Fastener rows 90-inch o.c	-52.5 (Lim. 7)
C-M-4	-	-	<i>Approved Insulation</i>	<i>Preliminarily Secured or secured with top layer</i>	CSP-TPO	Attached in-lap 12-inch o.c. with OMG Heavy Duty or OMG CD-10 fasteners and OMG 2-3/4-inch Eye Hook Seam Plates; Fastener rows 114-inch o.c	-52.5 (Lim. 7)

Assemblies with Adhered Membranes over Insulated Steel Deck (New, Existing or Recover)								
System No.	Deck Detail	Base Insulation	Base Insulation Attachment	Top Insulation	Top Insulation Attachment	Membrane	Membrane Attachment	MDP (psf)
S-AM-1	G33, L6, F1, S30	Approved Insulation	Preliminarily Secured or secured with top layer	Min. 1.5-inch ENRGY 3	OMG Fasteners and Plates at a rate of 1 per 2 ft ²	CSP-TPO	CBA	-45 (Lim. 9)

Mechanically Fastened Assemblies over Steel Deck (New or Existing)								
System No.	Deck Detail	Base Insulation	Base Insulation Attachment	Top Insulation	Top Insulation Attachment	Membrane	Membrane Attachment	MDP (psf)
S-M-1	G33, L6, F1, S30	-	-	Approved Insulation	Preliminarily Secured or secured with top layer	CSP-TPO	Attached in-lap 6-inch o.c. with HD Fasteners & Plates or XHD Fasteners & Plates; Fastener rows 114-inch o.c	-45 (Lim. 7)
S-M-2	G80, L6, F1, S30	-	-	Approved Insulation	Preliminarily Secured or secured with top layer	CSP-TPO	Attached in-lap 12-inch o.c. with SXHD Fasteners & Plates; Fastener rows 114-inch o.c	-45 (Lim. 7)
S-M-3	G33, L6, F1, S30	-	-	Approved Insulation	Preliminarily Secured or secured with top layer	CSP-TPO	Attached in-lap 12-inch o.c. with HD Fasteners & Plates or XHD Fasteners & Plates; Fastener rows 90-inch o.c	-45 (Lim. 7)
S-M-4	G33, L6, F1, S30	-	-	Approved Insulation	Preliminarily Secured or secured with top layer	CSP-TPO	Attached in-lap 6-inch o.c. with HD Fasteners & Plates or XHD Fasteners & Plates; Fastener rows 90-inch o.c	-52.5 (Lim. 7)
S-M-5	G33, L6, F1, S30	-	-	Approved Insulation	Preliminarily Secured or secured with top layer	CSP-TPO	Attached in-lap 6-inch o.c. with OMG #15 Roofgrip fasteners and OMG 2-3/4-inch Eye Hook Seam Plates; Fastener rows 114-inch o.c	-52.5 (Lim. 7)
S-M-6	G80, L6, F1, S30	-	-	Approved Insulation	Preliminarily Secured or secured with top layer	CSP-TPO	Attached in-lap 12-inch o.c. with OMG Super XHD or OMG Heavy Duty fasteners and OMG 2-3/4-inch Eye Hook Seam Plates; Fastener rows 114-inch o.c	-52.5 (Lim. 7)

END OF REPORT