EVALUATION REPORT

FLORIDA BUILDING CODE, 8TH EDITION (2023)

Manufacturer: HENRY® A CARLISLE COMPANY
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Quality Assurance: PRI Construction Materials Technologies (QUA9110)

SCOPE

Category: Roofing
Subcategory: Liquid Applied Roof Systems
Code Edition: Florida Building Code 8th Edition (2023) including the High-Velocity Hurricane Zones (HVHZ)
Code Sections: 1504.3.1, 1504.6, 1515.1.1, 1515.1.4, 1523.1.1, 1523.6.2, 1523.6.3
Properties: Wind Resistance, Physical Properties

REFERENCES

Entity	Report No.	Standard	Year
PRI Construction Materials Technologies (TST5878)	HGC-336-02-01	TAS 114(D)	2011
		ANSI/FM 4474(B)	2011
PRI Construction Materials Technologies (TST5878)	447T0013	ASTM G 155	2013
		ASTM D 635	2014
		ASTM D 2843	2016
		ASTM D 1929	2016
		Physical properties	Various
PRI Construction Materials Technologies (TST5878)	447T0063	Physical properties	Various
PRI Construction Materials Technologies (TST5878)	447T0064	Physical properties	Various
PRI Construction Materials Technologies (TST5878)	447T0065	Physical properties	Various
PRI Construction Materials Technologies (TST5878)	447T0071	Physical properties	Various
PRI Construction Materials Technologies (TST5878)	447T0135	TAS 114(J)	2011
		ANSI/FM 4474(D)	2011
PRI Construction Materials Technologies (TST5878)	447T0139	TAS 114(D)	2011
		ANSI/FM 4474(B)	2011
PRI Construction Materials Technologies (TST5878)	447T0147	ASTM E 2322	2003(2015)
PRI Construction Materials Technologies (TST5878)	447T0148	TAS 114(D)	2011
		ANSI/FM 4474(B)	2011

PRODUCT DESCRIPTION

Henry® Pumadeq™ Liquid Applied Roof System		
Use	Product	Description and Application
Primer	Henry® Pumadeq™ Primer 20	Polymethyl methacrylate (PMMA) primer
	Henry® GC Epoxy Primer	Two-component, epoxy sealer/primer
Waterproofing Membrane	Henry® Pumadeq™ Flex 30SL	Polyurethane-modified methyl methacrylate (PUMA), elastic waterproofing membrane
Surfacing	Henry® Pumadeq™ Grip 40	Polyurethane-modified methyl methacrylate (PUMA), elastic waterproofing membrane
	Henry® Deqcoat 50	Polymethyl methacrylate (PMMA), top surfacing

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LIMITATIONS

1. Fire classification is not within the scope of this evaluation.
2. 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.
3. Foam plastic insulation shall be installed in accordance with the FBC Section 2603.4 and 2603.6.
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 roof system. 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 (July 2022).
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. Exterior elevated flooring systems listed in **APPROVED ASSEMBLIES** have been evaluated using ANSI/FM 4474 and TAS 114 for the uplift resistance of the overburden attachment only. Other requirements of section 3115 are not within the scope of this approval.
11. 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.
12. The minimum roof slope shall be 1/4:12 for new construction.
13. All products listed in this report shall be manufactured under a quality assurance program in compliance with Rule 61G20-3.

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COMPLIANCE STATEMENT

This report has been prepared in accordance with F.A.C. Rule 61G20-3.

This item has been digitally signed and sealed by Zachary R. Priest, PE, on 6/18/2024.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed by Zachary R. Priest
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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 (2 pages)

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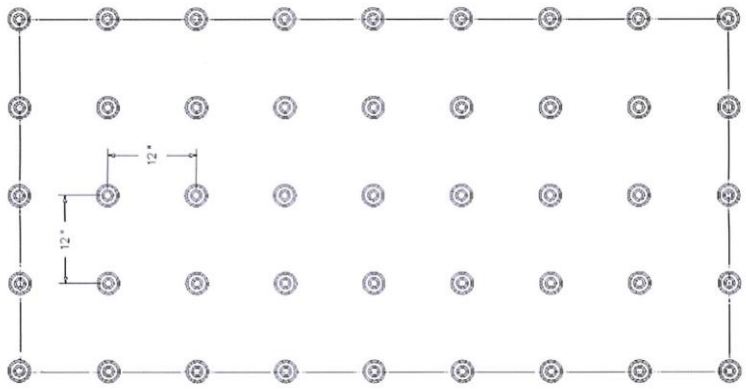
INSTALLATION

*Note - Refer to the **APPROVED ASSEMBLIES** section of this report within Appendix B for specific installation details of a selected roof system.*

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

Component	Product	Installation Detail
Fasteners & Plates	Drill-Tec 3" Steel Plate	3-inch round galvalume plate
	Drill-Tec #12 DF Fastener	#12 fastener; Min. 3/4-inch penetration through the top rib of the steel deck
Insulation Adhesives	Carlisle Flexible FAST Dual Cartridge Adhesive	Ribbon adhered in 3/4 to 1-inch wide beads
Insulation/Cover Boards	Carlisle InsulFoam IX	Min. 1/4-inch thick expanded polystyrene (EPS); Adhered boards shall be a maximum 4 ft x 4 ft
	Georgia-Pacific DensDeck Prime	Min. 1/4-inch thick
Primer	Henry Pumadeq Primer 20	Applied at a rate of 1.0 gal/100ft^2
	Henry GC Epoxy Primer	Applied at a rate of 1.0 gal/100ft^2; May be applied to "green" concrete (min. 5 day cure)
Waterproofing Membrane	Henry Pumadeq Flex 30SL	Mixed with Henry Pumadeq Catalyst per manufacturer's instructions; Applied in two coats to a min. 50 mils for first application and a min. 30 mils for second application, for a total of 80 mil
Surfacing	Henry Pumadeq Grip 40	Applied at 40 mils with silica sand (#20-50, #12 Silica, or NJ0-NJ00) broascast to refusal. Remove excess sand prior to applying additional surfacings.
	Henry Deqcoat 50	Applied in two coats for a total of 32 mil (20 mil base coat followed by a 12 mil top coat)

Insulation Fastening Pattern



12-inch o.c. Grid Pattern

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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 roof system. Installation requirements shall be as noted in the APPROVED ASSEMBLIES and INSTALLATION section of this report.

Name	Definition		
#12 Fasteners and Plates	Drill-Tec #12 DF Fasteners and Drill-Tec 3" Steel Plate		
As Tested	Information provided to the report user based on the as tested condition of the roof system		
Deck Detail	*As Tested* deck construction details are described as follows:		
	Concrete Deck	Designed by others in accordance with FBC requirements; Min. f'_c = 2,500 psi at 28 days	
	Steel Deck	Designed by others in accordance with FBC requirements; Min. 22 ga, (F_y = 33ksi) Wide Rib Deck (Type WR) conforming to ANSI/SDI-RD1.0 & FBC; 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. 1/4-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
Flexible FAST	Carlisle Flexible FAST Dual Cartridge Adhesive		
MDP	Maximum Design Pressure		

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APPROVED ASSEMBLIES

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

1. *MDP*s were calculated using a 2:1 margin of safety per FBC Section 1504.9 and 1523.4.
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 roof system.
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.

Henry® Pumadeq™ Assemblies over *Concrete Deck* (New or Existing)

System No.	*Deck Detail*	Insulation	Liquid Applied Roof System			Overburden	*MDP* (psf)
			Primer	Waterproofing Membrane	Surfacing		
C-1	*Concrete*	-	Pumadeq™ Primer 20 or GC Epoxy Primer	Pumadeq™ Flex 30SL	Pumadeq™ Grip 40	Greenrise Technologies's Concrete Wind Uplift Paver System[1] set in 2.5 to 3.5oz of 3M 550 Polyurethane Adhesive Sealant	**-45 (Lim. 9)**
C-2	*Concrete*	-	Pumadeq™ Primer 20 or GC Epoxy Primer	Pumadeq™ Flex 30SL	-	-	**-502.5 (Lim. 9)**
C-3	*Concrete*	-	Pumadeq™ Primer 20 or GC Epoxy Primer	Pumadeq™ Flex 30SL	Pumadeq™ Grip 40 followed by Deqcoat 50	-	**-502.5 (Lim. 9)**

Note(s): 1) Greenrise Technologies's Concrete Wind Uplift Paver System is comprised of the following elements: 1) 24-inch x 24-inch x 2-inch thick Concrete Wind Uplift Pavers, 2) GRT Fixed Head Pedestals (7-inch diameter polypropylene head threaded into 8-inch diameter polypropylene supporting base) and 3) One (1) 3/16-inch x 1.5-inch diameter galvanized steel washer and one (1) #9 x 1-3/4-inch Type 305 SS wood screw placed at the intersection of the four (4) paver corners with the washer engaged into the prefabricated, hidden slot of the pavers and the screw anchored into the pedestal head.

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Henry® Pumadeq™ Assemblies over *Steel Deck* (New or Existing)								
System No.	*Deck Detail*	Insulation	Cover Board	Liquid Applied Roof System			Overburden	*MDP* (psf)
				Primer	Waterproofing Membrane	Surfacing		
S-1	*G33*	Min. 2-inch InsulFoam IX fastened with *#12 Fasteners and Plates* in *12-inch o.c. Grid Pattern*	Min. 1/2-inch DensDeck Prime adhered in *Flexible FAST* ribbons spaced 4-inch o.c.	Pumadeq™ Primer 20	Pumadeq™ Flex 30SL	Pumadeq™ Grip 40	Greenrise Technologies's Concrete Wind Uplift Paver System[1] set in 2.5 to 3.5oz of 3M 550 Polyurethane Adhesive Sealant	**-37.5 (Lim. 9; Non-HVHZ)**
S-2	*G33, L6, F1, S24*	Min. 2-inch InsulFoam IX fastened with *#12 Fasteners and Plates* in *12-inch o.c. Grid Pattern*	Min. 1/2-inch DensDeck Prime adhered in *Flexible FAST* ribbons spaced 4-inch o.c.	Pumadeq™ Primer 20	Pumadeq™ Flex 30SL	Pumadeq™ Grip 40 followed by Deqcoat 50	-	**-112.5 (Lim. 9)**

Note(s): 1) Greenrise Technologies's Concrete Wind Uplift Paver System is comprised of the following elements: 1) 24-inch x 24-inch x 2-inch thick Concrete Wind Uplift Pavers, 2) GRT Fixed Head Pedestals (7-inch diameter polypropylene head threaded into 8-inch diameter polypropylene supporting base) and 3) One (1) 3/16-inch x 1.5-inch diameter galvanized steel washer and one (1) #9 x 1-3/4-inch Type 305 SS wood screw placed at the intersection of the four (4) paver corners with the washer engaged into the prefabricated, hidden slot of the pavers and the screw anchored into the pedestal head.

END OF REPORT

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