



**NEMO|etc.**

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ENGINEER

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**EVALUATION REPORT**

**Gaco™, a Division of Firestone Building Products**  
1245 Chapman Drive  
Waukesha, WI 53186  
**(800) 331-0196**

**Evaluation Report 3m-FBP-20-FBCER.C-R0**  
**FL14723-R11 (HVHZ)**  
**Date of Issuance: 04/09/2021**

**SCOPE:**

This Evaluation Report is issued under **Rule 61G20-3** and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The product described herein has been evaluated for compliance with the **7<sup>th</sup> Edition (2020) Florida Building Code, High Velocity Hurricane Zone** sections noted herein.

**DESCRIPTION: GacoRoofFoam 2733 for use in FBC HVHZ jurisdictions**

**LABELING:** Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein.

**CONTINUED COMPLIANCE:** This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our Evaluation Reports by the named client constitutes agreement to notify NEMO ETC, LLC of any changes to the product(s), the Quality Assurance or the production facility location(s). NEMO ETC, LLC requires a complete review of its Evaluation Report relative to updated Code requirements with each Code Cycle.

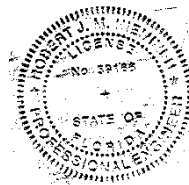
**ADVERTISEMENT:** The Florida Product Approval Number (FL#) preceded by the words "NEMO|etc. Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

**INSPECTION:** Upon request, a copy of this entire Evaluation Report 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 Evaluation Report consists of pages 1 through 4, plus a 7-page Appendix.

**Prepared by:**

**Robert J.M. Nieminen, P.E.**  
*Florida Registration No. 59166, Florida DCA ANE1983*



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 04/09/2021. This does not serve as an electronically signed document.

**CERTIFICATION OF INDEPENDENCE:**

1. NEMO ETC, LLC does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. NEMO ETC, LLC is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

**ROOFING SYSTEMS EVALUATION:**
**1. SCOPE:**

**Product Category:** Roofing  
**Sub-Category:** Spray Applied Polyurethane Roof System  
**Compliance Statement:** GacoRoofFoam 2733, as produced by Gaco™, a Division of Firestone Building Products have demonstrated compliance with the following sections of the 7<sup>th</sup> Edition (2020) Florida Building Code, High Velocity Hurricane Zone through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

**2. STANDARDS:**

Section	Property	Standard	Year
TAS 110	Resistance to Foot Traffic	TAS 114, Section 8.9	2011
TAS 110	Wind resistance	TAS 114, Appendix C, D or J	2011
TAS 110	Susceptibility Hail Damage	TAS 114, Appendix F	2011
TAS 110	Susceptibility to Leakage	TAS 114, Appendix G	2011
TAS 110	Material standard	TAS 110, Section 6	2000
TAS 110	Material standard	ASTM D4601	2012
TAS 110	Material standard	ASTM D6163	2015
TAS 110	Material standard	ASTM D6083	2018
TAS 110	Material standard	ASTM D6694	2013
1523.6.2.1.1	Wind driven rain	TTC-555B	1973
2603.3	Flame Spread-Index	ASTM E84 <sup>1</sup>	2016

**3. REFERENCES:**

Entity	Examination	Reference	Date
FM Approvals (TST1867)	FM 4470	2D0A0.AM	12/23/1998
FM Approvals (TST1867)	FM 4470	3023644	02/02/2007
FM Approvals (TST1867)	FM 4470	3052963	10/21/2014
ITS (TST1585)	ASTM E84	101157815SAT-018D	07/29/2014
ITS (TST1585)	ASTM E84	101157815SAT-018E	07/29/2014
ITS (TST6781)	ASTM C1029	101157815MID-001	11/04/2014
ITS (TST6781)	ASTM C1029	102206114MID-001	06/22/2015
ITS (TST6781)	ASTM C1029	102210761MID-001	06/22/2015
NEMO (TST6049)	ASTM D6083, TTC-555B	4p-FBP-20-SSLAP-01.A	03/23/2021
PRI (TST5878)	ASTM D6163	FBP-017-02-01	09/13/2004
PRI (TST5878)	ASTM D6163	FBP-053-02-01	03/23/2012
PRI (TST5878)	FM 4474 / TAS 114	FBP-067-02-01	07/23/2012
PRI (TST5878)	FM 4474 / TAS 114	FBP-104-02-01	04/17/2013
PRI (TST5878)	FM 4474 / TAS 114	FBP-112-02-01	04/19/2013
PRI (TST5878)	FM 4474 / TAS 114	FBP-141-02-01	12/18/2013
PRI (TST5878)	FM 4474 / TAS 114	FBP-177-02-01	07/15/2014
PRI (TST5878)	ASTM D6694, TTC-555B	GWI-026-02-01	12/11/2015
PRI (TST5878)	ASTM D4601	FBP-293-02-01	04/27/2016
PRI (TST5878)	ASTM D6083, TTC-555B	GWI-045-02-01	07/21/2017
PRI (TST5878)	ASTM D6694, TTC-555B	GWI-042-02-01	01/09/2018
PRI (TST5878)	ASTM D6694, TTC-555B	GWI-044-02-01	01/09/2018
PRI (TST5878)	ASTM D6694, TTC-555B	GWI-043-02-01	01/09/2018
PRI (TST5878)	Criticality	FBP-059-02-01	03/15/2018
PRI (TST5878)	FM 4474 / TAS 114	GWI-057-02-01	08/15/2018
PRI (TST5878)	FM 4474 / TAS 114	GWI-057-02-02	08/15/2018
PRI (TST5878)	ASTM D2126, TAS 110	GWI-052-02-01	08/16/2018
PRI (TST5878)	FM 4474 / TAS 114	GWI-060-02-01	10/25/2018

<sup>1</sup> Numerical ratings as determined by ASTM E84 are not intended to reflect hazards presented by these materials under actual fire conditions.

Entity	Examination	Reference	Date
PRI (TST5878)	FM 4474 / TAS 114	GW-060-02-02	10/26/2018
PRI (TST5878)	FM 4474 / TAS 114	GW-060-02-01	11/15/2018
PRI (TST5878)	FM 4474 / TAS 114	GW-060-02-03	12/07/2018
PRI (TST5878)	FM 4474 / TAS 114	GW-060-02-04	12/07/2018
PRI (TST5878)	FM 4474 / TAS 114	GW-067-02-02	12/07/2018
PRI (TST5878)	FM 4474 / TAS 114	GW-076-02-01	04/03/2019
PRI (TST5878)	FM 4474 / TAS 114	GW-075-02-01	05/09/2019
PRI (TST5878)	FM 4474 / TAS 114	GW-075-02-02	05/09/2019
PRI (TST5878)	ASTM D6694	GW-071-02-01	09/12/2019
PRI (TST5878)	FM 4474 / TAS 114	348T0059	06/05/2020
PRI (TST5878)	ASTM D6083	348T0053	09/10/2020
UL, LLC (QUA 9625)	Quality Control	Service Confirmation	12/21/2020
UL, LLC (QUA9625)	Quality Control	Florida BCIS	Current

#### 4. PRODUCT DESCRIPTION:

This Evaluation Report covers **GacoRoofFoam 2733** installed in accordance with **Gaco™, a Division of Firestone Building Products** published installation instructions and the Limitations / Conditions of Use herein.

**TABLE 1: EVALUATED COMPONENTS**

Type	Product	Material Standard			Plant(s)
		Reference	Type	Grade	
Base Sheet:	MB Base	ASTM D4601	II	N/A	AL
	SBS Base	ASTM D6163	I	S	IN
	SBS Premium Base	ASTM D6163	II	S	IN
Insulation	GacoRoofFoam 2733	ASTM C1029	III	N/A	WI
Surfacing	GacoFlex A-31	ASTM D6083	I	N/A	WI
	GacoFlex A-47	ASTM D6083	I	N/A	WI
	GacoFlex U-91	ASTM D6083	I	N/A	WI
	GacoFlex S-10	ASTM D6694	N/A	N/A	WI
	GacoFlex S-20	ASTM D6694	N/A	N/A	WI
	GacoFlex S-21	ASTM D6694	N/A	N/A	WI
	GacoFlex S-42	ASTM D6694	N/A	N/A	WI
	GacoRoof GR-16	ASTM D6694	N/A	N/A	WI

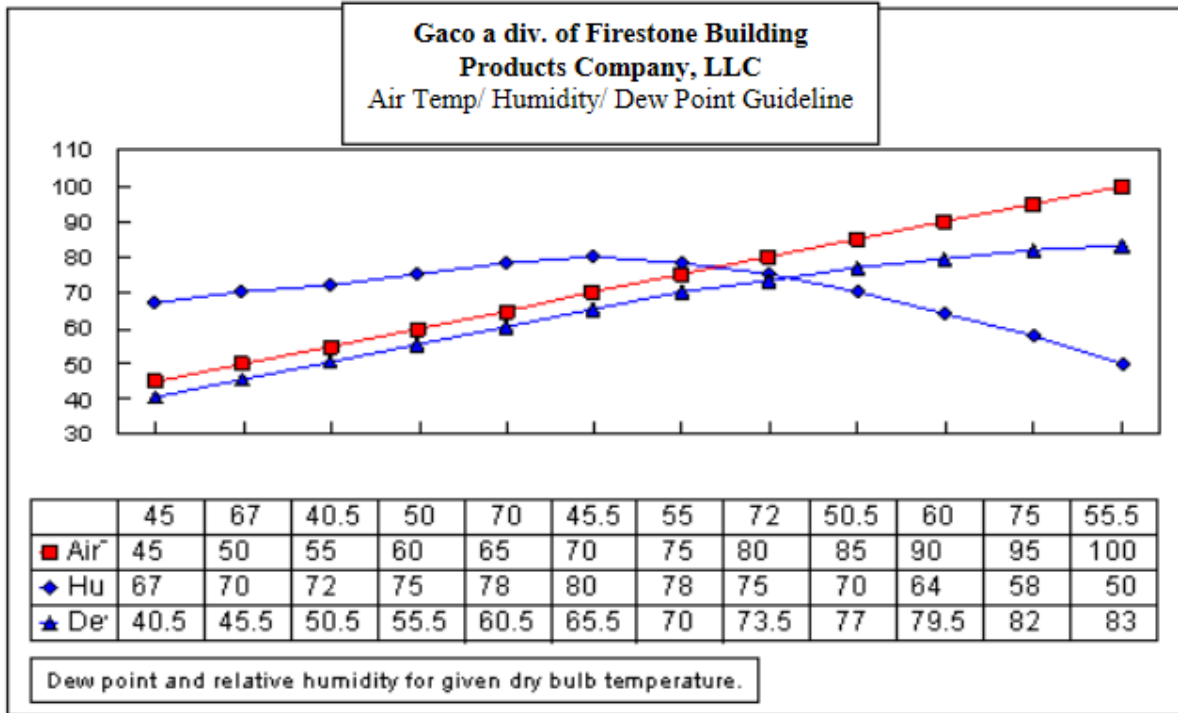
#### 5. LIMITATIONS:

- 5.1 This is a Building Code Evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in Non-High Velocity Hurricane Zone jurisdictions.
- 5.3 The evaluation herein pertains to above-deck roof components; deck-attachment details pertain to 'as-tested' conditions under **Testing Application Standard TAS 114, Appendix J**. Roof decks shall be in accordance with **FBC HVHZ** requirements to the satisfaction of the Authority Having Jurisdiction.
- 5.4 This Evaluation Report does not include evaluation of fire classification. Refer to **FBC HVHZ 1516** for requirements and limitations regarding roof assembly fire classification. Refer to **FBC 2603** for requirements and limitations concerning the use of foam plastic insulation.
- 5.5 This Evaluation Report does not include evaluation of roof edge termination. Refer to **Roofing Application Standard RAS 111** for requirements and limitations regarding edge securement for low-slope roofs.
- 5.6 Refer to **FBC HVHZ 1521** for requirements and limitations regarding recover installations.

- 5.6.1 For mechanically attached components over existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing shall be in accordance with **Testing Application Standard TAS 105**.
- 5.6.2 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with **Testing Application Standard TAS 124** shall be conducted on mock-ups of the proposed new roof assembly.
- 5.6.3 For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the Authority Having Jurisdiction, as documented through field uplift testing in accordance with **Testing Application Standard TAS 124**.
- 5.7 Refer to Appendix 1 for system attachment requirements for wind load resistance.
- 5.7.1 “MDP” = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per **Testing Application Standard TAS 114** has already been applied). Refer to **FBC HVHZ 1620** and **Roofing Application Standard RAS 128** for determination of design wind loads.
- 5.7.2 For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with **FBC HVHZ 1620** or **Roofing Application Standard RAS 128**. Elevated pressure zones shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Analysis shall be in accordance with **Roofing Application Standard RAS 117** or **Roofing Application Standard RAS 137**. *\*This extrapolation is not permitted for systems marked with an asterisk\**.
- 5.7.3 For assemblies marked with an asterisk\*, the maximum design pressure (MDP) limitation shall be applicable to all roof pressure zones. Rational analysis is not permitted.
- 5.8 All components in the roof assembly shall have quality assurance audit in accordance with **F.A.C. Rule 61G20-3**. Refer to the Product Approval of the component manufacturer for components listed in Appendix 1 that are produced by a Product Manufacturer other than the report holder on Page 1 of this Evaluation Report.

## 6. INSTALLATION:

- 6.1 **GacoRoofFoam 2733** shall be installed in accordance with **Gaco™, a Division of Firestone Building Products** published installation instructions, subject to the Limitations / Conditions of Use noted herein, **Roofing Application Standard (RAS) 109** and **FBC Section 1521.18**.
- 6.2 Spray polyurethane foam shall not be applied when ambient temperature is within 5 degrees of the dew point. Ambient humidity application limits are as listed in Table 1 below. The contractor shall monitor and record environmental conditions in the Job Log in accordance with Roofing Application Standard (RAS) 109. Job log shall be maintained at the job site and accessible to the Building Official.



**7. BUILDING PERMIT REQUIREMENTS:**

As required by the Building Official or Authority Having Jurisdiction to properly evaluate the installation of this product.

**8. MANUFACTURING PLANTS:**

Contact the named QA entity for manufacturing facilities covered by **F.A.C. Rule 61G20-3** QA requirements. Refer to Section 4 herein for products and production locations having met codified material standards.

**9. QUALITY ASSURANCE ENTITY:**

UL, LLC – QUA9625; (414) 248-6409; karen.buchmann@ul.com

**- THE 7-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -**

**APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE**

TABLE	DECK	APPLICATION	TYPE	DESCRIPTION	PAGE
1A	Wood	New, Reroof (Tear-Off), Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	3
1B	Wood	New, Reroof (Tear-Off), Recover	D-2	Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	3
1C	Wood	New, Reroof (Tear-Off) or Recover	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	3
2A	Steel	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	4
2B	Steel or structural concrete	New, Reroof (Tear-Off), Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	4
2C	Steel or structural concrete	New, Reroof (Tear-Off), Recover	D-2	Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	4
3A	Structural concrete	New, Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	4
4A	Lightweight concrete / concrete	New or Reroof (Tear-Off)	A-1	LWC to Concrete Deck, Bonded Insulation, Bonded Roof Cover	5
4B	Lightweight concrete / steel	New, Reroof (Tear-Off), Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	5
4C	Lightweight concrete / steel or concrete	New, Reroof (Tear-Off)	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	5-6
5A	Cementitious wood fiber	Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	7
6A	Gypsum	Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	7
7A	Various	Recover	A-1	Bonded Insulation, Bonded Roof Cover	7

**The following notes apply to the systems outlined herein:**

- 1 The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC HVHZ requirements to the satisfaction of the Authority Having Jurisdiction. Deck-attachment details pertain to 'as-tested' conditions under Testing Application Standard TAS 114, Appendix J.
- 2 Unless otherwise noted, fasteners and stress plates shall be as follows. Fasteners shall be of sufficient length for the following engagements:
  - Wood Deck: Firestone All-Purpose or Heavy-Duty Fasteners with Firestone Insulation Fastening Plates. Minimum 1-inch plywood penetration or wood plank embedment.
  - Steel Deck: Firestone All-Purpose, All-Purpose S or Heavy-Duty Fasteners with Firestone Insulation Fastening Plates. Minimum 0.75-inch steel penetration and engage the top flute of the steel deck.
  - Structural Concrete: Firestone Heavy-Duty or Concrete Drive Fasteners with Firestone Insulation Fastening Plates. Minimum 1.25-inch embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions.
- 3 Unless otherwise noted, insulation may be any one layer or combination of FBC Approved (Local or Statewide) board(s) that meet FBC HVHZ 1516 and, for foam plastic, FBC Chapter 26, when installed with the roof cover.
- 4 If mechanical attachment to the structural deck through lightweight insulating concrete is proposed, field withdrawal resistance testing shall be performed to confirm equivalent or determine enhanced fastening patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117 and/or RAS 137. Calculations shall be prepared, signed and sealed by a qualified design professional.
- 5 Preliminary insulation attachment for System Type D: Minimum four fasteners per 4 x 8 ft board or minimum two fasteners per 4 x 4 ft board.
- 6 Unless otherwise noted, insulation adhesive application rates are as follows. The ribbons/beads shall expand as noted in the manufacturer's published instructions.
  - Firestone I.S.O. FIX II: Continuous 0.75-inch beads, 8-inch o.c.
  - Firestone I.S.O. Spray R: Continuous 0.5 to 0.75-inch ribbons, 12-inch o.c.
  - Firestone I.S.O. Stick: Continuous 0.75 to 1-inch wide ribbons, 12-inch o.c.
  - Firestone I.S.O. Twin Pack: Continuous 0.5 to 0.75-inch ribbons, 12-inch o.c.
  - Note: When multiple layers(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, board joints shall be staggered.
  - Note: The maximum edge distance from the adhesive ribbon to the edge of the insulation board shall be not less than one-half the specified ribbons spacing.
- 7 RESERVED
- 8 Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.

- 9 For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with FBC HVHZ 1620 or Roofing Application Standard RAS 128. Elevated pressure zones shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria in accordance with Roofing Application Standard RAS 117 or Roofing Application Standard RAS 137. \*This extrapolation is not permitted for systems marked with an asterisk\*
- 10 For assemblies marked with an asterisk\*, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16. No rational analysis is permitted for these systems.
- 11 For mechanically attached components over existing decks, fasteners shall be tested in the existing deck for withdrawal resistance in accordance with Testing Application Standard TAS 105. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Should the fastener resistance be less than that required, a revised fastener spacing – prepared, signed and sealed by a qualified design professional in accordance with Roofing Application Standard RAS 117 or Roofing Application Standard RAS 137 – may be submitted to the Building Official for review and acceptance.
- 12 Refer to FBC HVHZ 1521 for requirements and limitations regarding recover installations. For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance shall be conducted on mock-ups of the proposed new roof assembly. For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the Authority Having Jurisdiction, as documented through field uplift testing in accordance with Testing Application Standard TAS 124.
- 13 For Structural Concrete Deck or Recover Applications using System Type C-1, C-2, D-1 or D-2, the insulation is optional. Alternatively, an FBC HVHZ Approved insulation board or coverboard may be used as a separation layer. Board products shall be preliminarily attached prior to roof cover installation (Note 5 herein). The separator component shall be documented as meeting FBC HVHZ 1516 and, for foam plastic, FBC Chapter 26, when installed with the roof cover in Recover applications.
- 14 Lightweight insulating concrete (LWIC) shall be cast in accordance with FBC Section 1917 to the satisfaction of the Authority Having Jurisdiction. For systems where specific LWIC is referenced, refer to current LWIC FBC HVHZ Product Approval for specific deck construction and limitations. Unless otherwise noted, for systems where specific LWIC is not referenced, the minimum design mix shall be 300 psi. In all cases, the minimum top-coat thickness is 2-inches. For LWIC over structural concrete, reference is made to FBC Section 1917.4.1, Point 1. For “pre-existent” LWIC references, listings were established through testing over lightweight concrete cast using only foaming agent (ASTM C896), water and Portland cement (ASTM C150), with no proprietary additives, in accordance with procedures adopted by Miami-Dade BCCO (FBC CER1592). Use of these listings in new construction or re-roof (tear-off) applications is at the discretion of the Designer or Record and Authority Having Jurisdiction.
- 15 Unless otherwise noted, refer to the following.

POLYURETHANE FOAM & PROTECTIVE COATING APPLICATION	
POLYURETHANE FOAM APPLICATION	PROTECTIVE COATING APPLICATION
GacoRoofFoam 2733 shall be applied uniformly over the entire surface at the specified minimum thickness and not less than 1-inch thick; feathered at the edges to produce smooth transitions.	Protective coating shall be applied in accordance with Gaco current published installation instructions. The scope of this Evaluation Report includes the following protective coating options: ✓ GacoFlex A-31, GacoFlex A-47, GacoFlex U-91, GacoFlex S-10, GacoFlex S-20, GacoFlex S-21, GacoFlex S-42 or GacoRoof GR-16

- 16 “MDP” = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC (HVHZ) 1620 and Roofing Application Standard RAS 128 for determination of design wind loads.

**TABLE 1A: WOOD DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE C-1: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer (Note 13)	Top Insulation Layer			Primer	SPUF / Roof Cover (Note 15)	MDP (psf)
			Type	Fasteners (Note 11)	Attach			
W-1	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	(Optional) One or more layer(s), loose-laid	Min. 0.5-inch DensDeck Prime	Note 2	1 per 1.6 ft <sup>2</sup>	GacoFlex A-46 at 1 gal/sq.	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-82.5

**TABLE 1B: WOOD DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE D-2: INSULATED, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER**

System No.	Deck (Note 1)	Insulation (Note 13)	Base Sheet			Primer	SPUF / Roof Cover (Note 15)	MDP (psf)
			Base	Fasteners (Note 11)	Attach			
W-2	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	Any combination, loose-laid	MB Base, SBS Base or SBS Premium Base	Note 2	12-inch o.c. at the 3-inch side laps and 12-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-67.5
W-3	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	Any combination, loose-laid	SBS Base or SBS Premium Base	Note 2	12-inch o.c. at the 3-inch side laps and 12-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	GacoFlex A-46 at 1 gal/sq.	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-67.5

**TABLE 1C: WOOD DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE E-2: NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Sheet			Primer	SPUF / Roof Cover (Note 15)	MDP (psf)
		Base	Fasteners (Note 11)	Attach			
W-4	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	MB Base, SBS Base or SBS Premium Base	FBC HVHZ 1519.5.1 nails & tin caps (no recover applications)	9-inch o.c. at the 2-inch side laps and 9-inch o.c. at three (3), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-52.5
W-5	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	MB Base, SBS Base or SBS Premium Base	Note 2	12-inch o.c. at the 3-inch side laps and 12-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-67.5
W-6	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	SBS Base or SBS Premium Base	Note 2	12-inch o.c. at the 3-inch side laps and 12-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	GacoFlex A-46 at 1 gal/sq.	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-67.5
W-7	Min. CAT 19/32 PS 1-09, CDX plywood; 2-ft span; 0.113 x 2-3/8 in. ring shank nails, 6" o.c.	SBS Premium Base	FBC HVHZ 1519.5.1 nails & tin caps (no recover applications)	6-inch o.c. at the 3.5-inch side laps and 6-inch o.c. at three (3), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-82.5



**TABLE 2A: STEEL DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	SPUF / Roof Cover (Note 15)	MDP (psf)
SC-1.	Min. 22 ga., Type B, 33 ksi steel; 6 ft span; puddle welds 6" o.c.	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-75.0
SC-2.	Min. 22 ga., Type B, 55 ksi steel; 6 ft span; #12-24 HWH screws, 6" o.c.	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-105.0

**TABLE 2B: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE C-1: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer (Note 13)	Top Insulation Layer			SPUF / Roof Cover (Note 15)	MDP (psf)
			Type	Fasteners (Note 11)	Attach		
SC-3.	Min. 22 ga., Type B, 60 ksi steel; 6 ft span; puddle welds 6" o.c.	(Optional) One or more layer(s), loose-laid	0.5-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-60.0
SC-4.	Min. 22 ga., Type B, 33 ksi steel; 6 ft span; puddle welds 6" o.c.	(Optional) One or more layer(s), loose-laid	Min. 0.5-inch DensDeck Prime	Note 2	1 per 1.6 ft <sup>2</sup>	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-75.0
SC-5.	Min. 22 ga., Type B, 55 ksi steel; 6 ft span; #12-24 HWH screws, 6" o.c.	(Optional) One or more layer(s), loose-laid	Min. 0.5-inch DensDeck Prime	Note 2	1 per 1.6 ft <sup>2</sup>	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-97.5

**TABLE 2C: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE D-2: INSULATED, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER**

System No.	Deck (Note 1)	Insulation (Note 13)	Base Sheet			Primer	SPUF / Roof Cover (Note 15)	MDP (psf)
			Base	Fasteners (Note 11)	Attach			
SC-6.	Min. 22 ga., Type B, Grade 33 steel; 6 ft span; #12-24 HWH screws, 6" o.c.	Min. 1-inch thick, any combination, loose-laid	SBS Base or SBS Premium Base	Note 2	12-inch o.c. at the 3.4-inch side laps and 12-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-60.0

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	SPUF / Roof Cover (Note 15)	MDP (psf)
C-1	Min. 2,500 psi structural concrete	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-435.0

**TABLE 4A: LIGHTWEIGHT CONCRETE OVER STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE A-1: LWC TO DECK, BONDED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Lightweight Concrete (Note 14)	Base Insulation Layer		Coverboard		SPUF / Roof Cover (Note 15)	MDP (psf)
			Type	Attach (Notes 6,7,8)	Type	Attach (Notes 6,7,8)		
<b>CONCRECEL (FL5584 &amp; FL10500 OR NOA 18-0207.03):</b>								
LWC-1	Min. 2,500 psi structural concrete	Min. 770 psi, min. 2-inch thick Concrecel Cellular Concrete	0.5-inch DensDeck Prime	I.S.O. Fix II, I.S.O. Spray R, I.S.O. Stick or I.S.O. Twin Pack, 6-inch o.c.	None	N/A	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-187.5

**TABLE 4B: LIGHTWEIGHT CONCRETE OVER STEEL DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE C-1: LWC TO DECK, MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Lightweight Concrete (Note 14)	Top Insulation Layer			SPUF / Roof Cover (Note 15)	MDP (psf)
			Type	Fasteners (Note 11)	Attach		
<b>CONCRECEL (FL5584 &amp; FL10500 OR NOA 18-0207.03):</b>							
LWC-2	Min. 22 ga., Type BV, 60 ksi steel; 6 ft span; puddle welds 6" o.c.	Min. 460 psi, min. 2-inch thick Concrecel Cellular Concrete	0.5-inch SECUROCK Gypsum-Fiber Roof Board	Firestone All-Purpose Fasteners or Heavy-Duty Fasteners with Firestone Insulation Fastening Plates	1 per 2.0 ft <sup>2</sup>	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-60.0
LWC-3	Min. 22 ga., Type BV, 60 ksi steel; 6 ft span; puddle welds 6" o.c.	Min. 520 psi, min. 2-inch thick Concrecel Cellular Concrete	0.5-inch DensDeck Prime	Firestone Heavy-Duty Fasteners with Firestone Insulation Fastening Plates	1 per 1.6 ft <sup>2</sup>	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-82.5

**TABLE 4C: LIGHTWEIGHT CONCRETE OVER STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE E-2: LWC TO DECK, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER**

System No.	Deck (Note 1)	Lightweight Concrete (Note 14)	Base Sheet			Primer	SPUF / Roof Cover (Note 15)	MDP (psf)
			Base	Fasteners (Note 11)	Attach			
<b>ELASTIZELL (FL4994 OR NOA 18-0208.03):</b>								
LWC-4	Min. 22 ga., Type BV, Grade 33 steel; 5 ft span; 5/8" puddle welds, 6" o.c. or structural concrete	Min. 210 psi, min. 2-inch thick Elastizell Lightweight Concrete with Zell-Crete Fibers	SBS Base or SBS Premium Base	Firestone 1.7" Assembled LWC Base Ply Fasteners	9-inch o.c. at the 3-inch side laps and 9-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-45.0
<b>CELCORE (FL2037 OR NOA 18-0717.05):</b>								
LWC-5	Min. 22 ga., Type BV, Grade 33 steel; 6 ft span; 5/8" puddle welds, 6" o.c. or structural concrete	Celcore S-1 followed by Min. 410 psi, min. 2-inch thick Celcore MF with Celcore HS Rheology Modifying Admixture	SBS Base or SBS Premium Base	Firestone 1.8" Two-Piece Impact Nails	8-inch o.c. at the 3-inch side laps and 8-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-52.5

**TABLE 4C: LIGHTWEIGHT CONCRETE OVER STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE E-2: LWC TO DECK, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER**

System No.	Deck (Note 1)	Lightweight Concrete (Note 14)	Base Sheet			Primer	SPUF / Roof Cover (Note 15)	MDP (psf)
			Base	Fasteners (Note 11)	Attach			
LWC-6	Min. 22 ga., Type BV, Grade 33 steel; 6 ft span; 5/8" puddle welds, 6" o.c. or structural concrete	Celcore S-1 followed by Min. 410 psi, min. 2-inch thick Celcore MF with Celcore HS Rheology Modifying Admixture	MB Base, SBS Base or SBS Premium Base	Firestone 1.7" Assembled LWC Base Ply Fasteners	8-inch o.c. at the 3-inch side laps and 8-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-60.0
LWC-7	Min. 22 ga., Type BV, Grade 33 steel; 6 ft span; 5/8" puddle welds, 6" o.c. or structural concrete	Celcore S-1 followed by Min. 360 psi, min. 2-inch thick Celcore MF with Celcore HS Rheology Modifying Admixture	SBS Base or SBS Premium Base	Firestone 1.8" Two-Piece Impact Nails	7-inch o.c. at the 3-inch side laps and 7-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-67.5
LWC-8	Min. 22 ga., Type BV, Grade 33 steel; 6 ft span; 5/8" puddle welds, 6" o.c. or structural concrete	Celcore S-1 followed by Min. 420 psi, min. 2-inch thick Celcore MF with Celcore HS Rheology Modifying Admixture	MB Base, SBS Base or SBS Premium Base	Firestone 1.7" Assembled LWC Base Ply Fasteners	7-inch o.c. at the 3-inch side laps and 7-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-75.0
<b>MEARLCRETE (FL13492 OR NOA 19-0729.03):</b>								
LWC-9	Min. 22 ga., Type BV, Grade 33 steel; 5 ft span; 5/8" puddle welds, 6" o.c. or structural concrete	Min. 250 psi, min. 2-inch thick Mearlcrete	MB Base, SBS Base or SBS Premium Base	Firestone 1.7" Assembled LWC Base Ply Fasteners	7-inch o.c. at the 4-inch side laps and 7-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-52.5
<b>PRE-EXISTENT CELLULAR LWC (NOTE 14):</b>								
LWC-10	Min. 22 ga., Type BV, Grade 33 steel; 5 ft span; #12-24 HWH screws with 1/2-inch washers, 6" o.c. or structural concrete	Min. 340 psi, min. 2-inch thick pre-existent cellular lightweight concrete. <i>Note: To qualify the LWC under this assembly, a Firestone 1.7" Assembled LWC Base Sheet Fastener shall achieve an average withdrawal of 101 lbf when tested per TAS 105 or ANSI/SPRI FX-1</i>	MB Base, SBS Base or SBS Premium Base	Firestone 1.7" Assembled LWC Base Ply Fasteners	7-inch o.c. at the 3-inch side laps and 7-inch o.c. at two (2), equally spaced, staggered rows in the center of the sheet	None	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-60.0

**TABLE 5A: CEMENTITIOUS WOOD FIBER DECKS - REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Deck(Notes 1 & 12)	SPUF / Roof Cover (Note 15)	MDP (psf)
CWF-1.	Tectum I	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-222.5

**TABLE 6A: GYPSUM DECKS - REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Deck (Notes 1 & 12)	SPUF / Roof Cover (Note 15)	MDP (psf)
G-1.	Existing poured gypsum deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-222.5

**TABLE 7A: RECOVER APPLICATIONS**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Substrate (Notes 1 & 12)	SPUF / Roof Cover (Note 15)	MDP (psf)
R-1	Existing, fully-adhered, asphaltic built-up roof (BUR) with smooth-surface over existing wood deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-45.0
R-2	Existing, fully-adhered, modified bitumen, APP, granule-surface over existing wood deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-52.5
R-3	Existing, fully-adhered, modified bitumen, APP, smooth-surface (sanded) over existing wood deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-57.5
R-4	Existing, fully-adhered, asphaltic built-up roof (BUR) with gravel-surface and loose gravel removed, modified bitumen, SBS, granule-surface or modified bitumen, SBS, smooth-surface (sanded) over existing wood deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-82.5
R-5	Existing, fully-adhered, asphaltic built-up roof (BUR) with smooth-surface over existing steel deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-90.0
R-6	Existing, fully-adhered, asphaltic built-up roof (BUR) with gravel-surface and loose gravel removed, modified bitumen, APP or SBS, granule-surface or modified bitumen, APP or SBS, smooth-surface (sanded) over existing steel deck	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-105.0
R-7	Existing, fully-adhered, asphaltic built-up roof (BUR) with smooth-surface over existing monolithic deck type (e.g., structural concrete, poured gypsum)	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-135.0
R-8	Existing, fully-adhered, modified bitumen, SBS, granule-surface over existing monolithic deck type (e.g., structural concrete, poured gypsum)	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-155.0
R-9	Existing, fully-adhered, asphaltic built-up roof (BUR) with gravel-surface (loose gravel removed) over existing monolithic deck type (e.g., structural concrete, poured gypsum)	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-220.0
R-10	Existing, fully-adhered, modified bitumen, APP, smooth-surface (sanded) over existing monolithic deck type (e.g., structural concrete, poured gypsum)	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-430.0
R-11	Existing, fully-adhered, modified bitumen, APP, granule-surface over existing monolithic deck type (e.g., structural concrete, poured gypsum)	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-502.5
R-12	Existing, fully-adhered, modified bitumen, SBS, smooth-surface (sanded) over existing monolithic deck type (e.g., structural concrete, poured gypsum)	Min. 1-inch GacoRoofFoam 2733 followed by Approved coating	-502.5