



NEMO|etc.

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EVALUATION REPORT

KELLY CO-2001, INC.
325 Thomaston Avenue
Waterbury, CT 06702
(203) 575-9220

Evaluation Report 1-KELL-18-001.06.18
FL2689-R6
Date of Issuance: 06/19/2018

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 **6th Edition (2017) Florida Building Code** sections noted herein.

DESCRIPTION: Kelly Co-2001, Inc. "Equalizer Valves"

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 documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. of any changes to the product(s), the Quality Assurance or the production facility location(s). NEMO|etc. requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

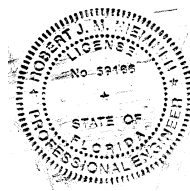
ADVERTISEMENT: The Evaluation Report number preceded by the words "NEMO|etc. Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

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 9-page Appendix.

Prepared by:

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



The facimile seal appearing was authorized by Robert Nieminen, P.E. on 06/19/2018. 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. 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: Single Ply Roof Systems
Compliance Statement: Single Ply Roof Systems installed with **Kelly Co-2001, Inc. "Equalizer Valves"**, as produced by **KELLY CO-2001, INC.**, have demonstrated compliance with the following sections of the **6th Edition (2017) Florida Building Code** 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:

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.3.1	Wind	UL 1897	2012
1504.7	Impact	FM 4470	2012
1507.12.2	Physical Properties	ASTM D4637	2013
1507.13.2	Physical Properties	ASTM D4434	2012
1507.13.2	Physical Properties	ASTM D6878	2011

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ERD (TST6049)	ASTM D4434	SIKA-SC7935.05.15-R2	04/28/2016
ERD (TST6049)	ASTM D4637	CRL-SC10340.09.16-2A	09/14/2016
ERD (TST6049)	ASTM D4637	CRL-SC10340.01.17-1A	01/04/2017
ERD (TST6049)	ASTM D4637	CRL-SC10340.01.17-1E	01/13/2017
NEMO (TST 6049)	ASTM D6878	4-CRL-18-002.04.18-1	04/03/2018
UL, LLC (TST9628)	UL 1897	98NK8094	01/12/1999
UL, LLC (TST9628)	UL 1897	12NK06288	05/04/2012
UL, LLC (CER9626)	UL 1897	TGIK.R9734	05/16/2017
NEMO FORM	Traceability	Cross-Listing Agreement	06/07/2018
UL, LLC (QUA9625)	Quality Control	Inspection Report, TPO	06/01/2017
UL, LLC (QUA9625)	Quality Control	Inspection Report, EPDM	08/14/2017
UL, LLC (QUA9625)	Quality Control	Service Confirmation, PVC	01/30/2018
UL, LLC (QUA9625)	Quality Control	Service Confirmation, R9734, Equalizer Vent	06/18/2018

4. PRODUCT DESCRIPTION:

- 4.1 **Kelly Co-2001, Inc. "Equalizer Valves"** are spun-aluminum, one-way vents designed to transfer the uplift (negative) pressure created by the vortex at the perimeter-edge of a low-slope roof system to beneath the roof membrane.
- 4.2 **"KELLY CPA (PVC)"** and **"2001 CPA (PVC)"** are nominal 45-mil (1.1 mm) or 60-mil (1.5 mm) thick, polyester scrim reinforced, single-ply roof membranes coated with a proprietary PVC compound; meets ASTM D4434, Type III.
- 4.3 **Carlisle SynTec Systems "Sure-Seal FR Nonreinforced"** are nominal 45-mil (1.1 mm), 60-mil (1.5 mm) or 90-mil (2.2 mm) thick, non-reinforced Ethylene Propylene Diene Monomer based roof membranes; meets ASTM D4637, Type I.
- 4.4 **Carlisle SynTec Systems "Sure-White"** are nominal 60-mil (1.5 mm) or 90-mil (2.2 mm) thick non-reinforced, bi-laminate, white-on-black, Ethylene Propylene Diene Monomer based roof membrane; meets ASTM D4637, Type I.
- 4.5 **Carlisle SynTec Systems "Sure-Tough"** and **"Sure-Tough FR"** are nominal 45-mil (1.1 mm), 60-mil (1.5 mm) or 75-mil (1.9 mm) thick, internally-reinforced Ethylene Propylene Diene Monomer based roof membranes; meets ASTM D4637, Type II.
- 4.6 **Carlisle SynTec Systems "Sure-Weld"** are nominal 45-mil (1.1-mm) or 60-mil (1.5-mm) thick, polyester-scrim reinforced, thermoplastic olefin (TPO) single-ply roof membranes; meets ASTM D6878.
- 4.7 **Carlisle SynTec Systems "Sure-Weld EXTRA"** are nominal 72-mil (1.8-mm) or 80-mil (2.0-mm) thick, polyester-scrim reinforced, thermoplastic olefin (TPO), single-ply roof membranes; meets ASTM D6878

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 **FBC HVHZ** jurisdictions.
- 5.3 Fire classification is not part of this evaluation; refer to a current Approved Roofing Materials Directory for fire ratings of this product.
- 5.4 For steel deck installations, foam plastic insulation shall be separated from the building interior in accordance with **FBC 2603.4** unless the exceptions stated in **FBC 2603.4.1** and **2603.6** apply.
- 5.5 The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. Load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- 5.6 For recover installations, the existing roof shall be examined in accordance with **FBC 1511**.
- 5.7 For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16. Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are **ANSI/SPRI WD1**, **FM Loss Prevention Data Sheet 1-29**, **Roofing Application Standard RAS 117** and **Roofing Application Standard RAS 137**. Assemblies marked with an asterisk* carry the limitations set forth in **Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (January 2016)** for Zone 2/3 enhancements.
- 5.8 For assemblies with all components fully bonded in place, 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.
- 5.9 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 and analysis shall be in accordance with **ANSI/SPRI FX-1** or **Testing Application Standard TAS 105**.
- 5.10 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 **ANSI/SPRI IA-1**, **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124** shall be conducted on mock-ups of the proposed new roof assembly.
- 5.11 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 **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124**.
- 5.12 Metal edge attachment (except gutters), shall be designed and installed for wind loads in accordance with FBC Chapter 16 and tested for resistance in accordance with **ANSI/SPRI ES-1** or **Roofing Application Standard RAS 111**, except the basic wind speed shall be determined from **FBC Figure 1609.3(1)**, **1609.3(2)** or **1609.3(3)**.
- 5.13 All products in the roof assembly shall have quality assurance in accordance with **FAC Rule 61G20-3**.

6. INSTALLATION:

- 6.1 Single Ply Roof Systems installed with **Kelly Co-2001, Inc. "Equalizer Valves"** shall be installed in accordance with **KELLY CO-2001, INC.** published installation instructions coupled with those of the roof membrane manufacturer, subject to the Limitations / Conditions of Use noted herein.
- 6.2 System attachment requirements for wind load resistance are set forth in Appendix 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 **FBC 1504.9** has already been applied). Refer to **FBC 1609** for determination of design wind loads.

7. BUILDING PERMIT REQUIREMENTS:

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

8. MANUFACTURING PLANTS:

Kelly Co-2001, Inc. "Equalizer Valves": Olive Branch, MS
"KELLY CPA (PVC)" and "2001 CPA (PVC)": Canton, MA

9. QUALITY ASSURANCE ENTITY:

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

- THE 9-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

TABLE	DECK	APPLICATION	TYPE	DESCRIPTION	PAGE
1	Wood	New or Reroof (Tear-Off)	G	Air-Sealed Deck, Air-Sealed Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	2
2A	Steel	New or Reroof (Tear-Off)	C	Air Sealed Deck, Mechanically Attached Insulation, Bonded Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	3-4
2B	Steel	New	G	Air Sealed Deck, Spray-Applied Insulation, Air-Sealed Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	5
3A	Structural concrete	New or Reroof (Tear-Off)	G	Air Sealed Deck, Optional Insulation, Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	6
3B	Structural concrete	New or Reroof (Tear-Off)	G	Deck Waterproofing, Optional Insulation, Roof Cover, Pressure Equalizing Vent	6
3C	Structural concrete	New or Reroof (Tear-Off)	G	Air Sealed Deck, Vapor Barrier, Optional Insulation, Coverboard, Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	7
4A	Concrete	Recover	G	Air Sealed Deck, Optional Insulation, Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	8
4B	Concrete	Recover	G	Air Sealed Deck, Vapor Barrier, Optional Insulation, Coverboard, Roof Cover, KELLY CO-2001 "EQUALIZER VALVES"	8-9

The following notes apply to the systems outlined herein:

- The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. Load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- Fasteners shall be of sufficient length for the following engagements:
 - Wood Deck: Minimum 0.75-inch plywood penetration or minimum 1-inch wood plank embedment.
 - Steel Deck: Minimum 0.75-inch steel penetration and engage the top flute of the steel deck.
 - Structural concrete: Minimum 1-inch embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions.
- Unless otherwise noted, insulation may be any one layer or combination of polyisocyanurate, polystyrene, wood fiberboard, perlite, gypsum-based roof board or mineral wool roof board that meets the QA requirements of F.A.C. Rule 61G20-3 and is documented as meeting FBC 1505.1 and, for foam plastic, FBC Chapter 26, when installed with the roof cover.
- For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16, and Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria, or an alternate system that meets Zone 2/3 pressure requirements. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (January 2016) for Zone 2/3 enhancements.
- For mechanically attached components over existing 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 ANSI/SPRI FX-1 or Testing Application Standard TAS 105.
- "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609 for determination of design wind pressures.

**TABLE 1: WOOD DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE G: AIR-SEALED DECK, AIR-SEALED ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"**

System No.	Deck (Note 1)	Insulation	Roof Cover			MDP (psf)
			Type	Air Seal	Valve	
W-1.	New Construction or Re-Roof (Tear-Off): Min. 15/32-inch APA rated plywood	FBC Approved, UL Classified two-component spray applied foamed plastic; formed in two or more layers, min ½-inch thick each, with 2001 Reinforced Fiberglass Mesh (not UL Classified) laid over first layer	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)"	<p>The perimeter and penetrations are sealed with a mechanically fastened, picture frame of Kelly Co-2001 Inc. termination bars, consisting of:</p> <ul style="list-style-type: none"> ✓ 2001 butyl rubber gasket (nominal 5/8" x ¾" cross-section) and termination bars consisting of ½" wide x 6 ft. long extruded aluminum bars. The gasket is centered on the underside of the membrane on the substrate. A termination bar is fastened over the membrane to the deck with 1/4-13 steel screws spaced 7" o.c. through pre-punched holes. or ✓ 2001 butyl rubber gasket (nominal 5/8" x ¾" cross-section) and termination strips consisting of min. 7/16" thick x 6" wide strips of APA rated wood sheathing. The gasket is centered on the underside of the membrane on the substrate. A termination strip is fastened over the membrane to the deck with FBC Approved #14 screws and 3" diameter galvalume metal stress plates spaced 12" o.c. 	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-60.0
W-2.	<p>New Construction: Min. 7/16-inch APA rated plywood or OSB; The longitudinal sides parallel to and centered over wood joists, spaced 24-inch o.c. Butt joints of adjacent sheets are to be staggered.</p> <p>Kelly Co-2001 petroleum-based exterior wood deck adhesive is used to adhere sheathing to joists and to seal all deck joints.</p> <p>Fastening consist of FBC Approved #14 screws and 3" diameter galvalume metal stress plates located in a row at the longitudinal seams of sheathing beginning 4 in. from each staggered butt seam and 20-inch o.c. Another row is located at the longitudinal center line of each sheet, 4-inch from each butt edge and 22-inch o.c.</p>	(Optional) UL Classified, FBC Approved separator mats or slip sheets, or rigid roof insulation, any thickness, adhered, mechanically attached or loose laid	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)"	<p>The perimeter and penetrations are sealed with a mechanically fastened, picture frame of Kelly Co-2001 Inc. termination bars, consisting of:</p> <ul style="list-style-type: none"> ✓ 2001 butyl rubber gasket (nominal 5/8" x ¾" cross-section) and termination bars consisting of ½" wide x 6 ft. long extruded aluminum bars. The gasket is centered on the underside of the membrane on the substrate. A termination bar is fastened over the membrane to the deck with 1/4-13 steel screws spaced 7" o.c. through pre-punched holes. or ✓ 2001 butyl rubber gasket (nominal 5/8" x ¾" cross-section) and termination strips consisting of min. 7/16" thick x 6" wide strips of APA rated wood sheathing. The gasket is centered on the underside of the membrane on the substrate. A termination strip is fastened over the membrane to the deck with FBC Approved #14 screws and 3" diameter galvalume metal stress plates spaced 12" o.c. 	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-97.5

TABLE 2A: STEEL DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE C: AIR SEALED DECK, MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"

System No.	Deck (Note 1)	Air Seal	Base Insulation	Top Insulation			Roof Cover			MDP (psf)
				Type	Fasteners	Attach	Type	Attach	Valve	
S-1.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	Anu UL Classified, FBC Approved polyisocyanurate insulation and/or gypsum-based coverboard	Min. 7/16-inch APA rated OSB	Carlisle "Sure-Seal HP Fastener"	1 per 4 ft ²	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough" or "Sure-Tough FR"	Carlisle "Sure-Seal 90-8-30A Bonding Adhesive", contact application at 1.67 gal/square	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-30.0
S-2.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	Anu UL Classified, FBC Approved polyisocyanurate insulation and/or gypsum-based coverboard	Min. 7/16-inch APA rated OSB	Carlisle "Sure-Seal HP Fastener"	1 per 4 ft ²	Carlisle "Sure-Weld" or "Sure-Weld EXTRA"	Carlisle "Sure-Weld Bonding Adhesive", contact application at 1.67 gal/square	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-30.0
S-3.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	Min. 1.5-inch Polyiso HP-H, InsulBase, HP-N, HP-W, H-Shield, ACFoam II, ACFoam III, H-Shield CG, ENRGY 3, PSI-25, Multi-Max FA-3	Additional layer(s) base insulation and/or min. 0.5-inch Dens Deck, Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	Carlisle "Sure-Seal HP Fastener" with "Sure-Seal Insulation Plate"	1 per 2 ft ²	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough" or "Sure-Tough FR"	Carlisle "Sure-Seal 90-8-30A Bonding Adhesive", contact application at 1.67 gal/square	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-45.0
S-4.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	Min. 1.5-inch Polyiso HP-H, InsulBase, H-Shield, ACFoam II, SecurShield, H-Shield CG, ENRGY 3	Additional layer(s) base insulation and/or min. 0.5-inch Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	Carlisle "Sure-Seal HP Fastener" with "Sure-Seal Insulation Plate"	1 per 2 ft ²	Carlisle "Sure-Weld" or "Sure-Weld EXTRA"	Carlisle "Sure-Weld Bonding Adhesive", contact application at 1.67 gal/square	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-45.0

TABLE 2A: STEEL DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)										
SYSTEM TYPE C: AIR SEALED DECK, MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"										
System No.	Deck (Note 1)	Air Seal	Base Insulation	Top Insulation			Roof Cover			MDP (psf)
				Type	Fasteners	Attach	Type	Attach	Valve	
S-5.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	(Optional) Min. 1.5-inch ACfoam II or Sarnatherm(a)	Additional layer(s) base insulation and/or min. 0.5-inch Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	OMG Heavy Duty with OMG Flat Bottom Metal Plate or Sarnafastener #14 with Sarnaplate	1 per 2 ft ²	"KELLY CPA (PVC)" or "2001 CPA (PVC)"	"Sarnacol 2121", wet-lay application at 0.75 to 2.25 gal/sq. or "Sarnacol 2170", contact application at 1.25 gal/sq	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-45.0
S-6.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	Anu UL Classified, FBC Approved polyisocyanurate insulation and/or gypsum-based coverboard	Min. 7/16-inch APA rated OSB	Carlisle "Sure-Seal HP Fastener" with "Sure-Seal Insulation Plate"	1 per 3.2 ft ²	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough" or "Sure-Tough FR"	Carlisle "Sure-Seal 90-8-30A Bonding Adhesive", contact application at 1.67 gal/square	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-52.5
S-7.	Min. 22 ga., type B, 33 ksi steel	Minimum min 4 mil Kelly Co-2001, Inc. reinforced polyethylene with end and lap seams overlapped min 6 in., and sealed with 2 in. wide pressure sensitive tape. The poly air barrier must be of sufficient size to wrap over the top of the insulation or cover board, a min of 6 in., around the entire perimeter and at penetrations, to be air sealed to the roof cover.	Anu UL Classified, FBC Approved polyisocyanurate insulation and/or gypsum-based coverboard	Min. 7/16-inch APA rated OSB	Carlisle "Sure-Seal HP Fastener" with "Sure-Seal Insulation Plate"	1 per 3.2 ft ²	Carlisle "Sure-Weld" or "Sure-Weld EXTRA"	Carlisle "Sure-Weld Bonding Adhesive", contact application at 1.67 gal/square	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-52.5

TABLE 2B: STEEL DECKS - NEW CONSTRUCTION
SYSTEM TYPE G: AIR SEALED DECK, SPRAY-APPLIED INSULATION, AIR-SEALED ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"

System No.	Deck (Note 1)	Air Seal	Insulation	Roof Cover			MDP (psf)
				Type	Air Seal	Valve	
S-8.	Min. 22 ga., type B, 33 ksi steel	Side-lap and butt seams sealed with two component spray-applied foamed plastic.	FBC Approved, UL Classified two-component spray applied foamed plastic; min 1 in. thick sprayed over 2001 Reinforced Fiberglass Mesh stretched across steel deck	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)"	<p>The perimeter and penetrations are sealed with a mechanically fastened, picture frame of Kelly Co-2001 Inc. termination bars, consisting of:</p> <ul style="list-style-type: none"> ✓ 2001 butyl rubber gasket (nominal 5/8" x 3/4" cross-section) and termination bars consisting of 1/2" wide x 6 ft. long extruded aluminum bars. The gasket is centered on the underside of the membrane on the substrate. A termination bar is fastened over the membrane to the deck with 1/4-13 steel screws spaced 7" o.c. through pre-punched holes. or ✓ 2001 butyl rubber gasket (nominal 5/8" x 3/4" cross-section) and termination strips consisting of min. 7/16" thick x 6" wide strips of APA rated wood sheeting. The gasket is centered on the underside of the membrane on the substrate. A termination strip is fastened over the membrane to the deck with FBC Approved #14 screws and 3" diameter galvalume metal stress plates spaced 12" o.c. 	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-112.5

**TABLE 3A: STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE G: AIR SEALED DECK, OPTIONAL INSULATION, ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"**

System No.	Deck (Note 1)	Perimeter Air Seal	Deck Air Seal	Insulation	Roof Cover		MDP (psf)
					Type	Valve	
C-1	Structural concrete	Minimum 18-inch wide strips min 4 mil reinforced polyethylene or Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)" adhered to the concrete deck at the entire perimeter with KELLY CO-2001, INC. specified adhesive or sealant. Air seal should be bonded so as to permit wrapping over the top of any insulation or barrier board, a min of 6 inches.	Any joints or holes through the roof deck are sealed in accordance with KELLY CO-2001, INC. specifications.	(Optional) Any UL Classified, FBC Approved roof insulation and/or coverboard combination, any thickness, loose-laid with staggered joints	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)"	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-75.0

**TABLE 3B: STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE G: DECK WATERPROOFING, AIR SEALED DECK, OPTIONAL INSULATION, ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"**

System No.	Deck (Note 1)	Deck Waterproofing	Air Seal	Insulation	Roof Cover		MDP (psf)
					Type	Valve	
C-2	Structural concrete	UL Classified roof coating or liquid applied roof system, FBC Approved for use over concrete deck, applied in accordance with the manufacturer's Florida Product Approval or UL Classified, ASTM D6164, polyester reinforced, SBS modified bitumen roof cover, FBC Approved for use over concrete deck, installed in accordance with the manufacturer's Florida Product Approval or UL Classified, spray-applied polyurethane foam roof system, FBC Approved for use over concrete deck, installed in accordance with the manufacturer's Florida Product Approval.	Air Seal: Minimum 18 in. wide strips of Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)", adhered or mechanically terminated to the roof deck, in a bead of air seal caulking or tape, with a continuous series of Kelly Co-2001, Inc. termination bar around the perimeter and penetrations. The air seal strips are extended up through the roof assembly, and are heat-welded to the underside of the roof cover	(Optional) UL Classified, FBC Approved separator mats or slip sheets, or rigid roof insulation, any thickness, adhered, mechanically attached, or loose laid, followed by 0.5-inch thick, UL Classified, FBC Approved gypsum-based roof coverboard, adhered, mechanically attached, or loose laid.	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)"	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-112.5

TABLE 3C: STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE G: AIR SEALED DECK, OPTIONAL VAPOR BARRIER, OPTIONAL INSULATION, ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"

System No.	Deck (Note 1)	Deck Air Seal	Vapor Barrier	Insulation	Coverboard	Roof Cover				MDP (psf)
						Type	Attach	Perimeters & Penetrations	Valve	
C-3	Structural concrete	Perimeter roof deck to vertical wall joints, through-roof-deck penetrations and deck joints are air sealed with Carlisle "Sure-Tough", or "Sure-Tough FR" fully adhered to the roof deck and flashed on to the perimeter and through deck penetrations.	(Optional) Siplast "Paradiene 20 TG", torch-applied followed by Siplast "Paradiene 30 FR TG", torch-applied	(Optional) UL Classified, FBC Approved rigid roof insulation, any thickness, mechanically attached or loose-laid.	Min. 0.5-inch Dens Deck, SECUROCK Glass-Mat Roof Board	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough" or "Sure-Tough FR"	Loose laid or adhered in Carlisle "Sure-Seal 90-8-30A Bonding Adhesive", contact application at 1.67 gal/square. The membrane is directly terminated (secured) to the concrete deck with KELLY CO-2001, INC. air seal termination techniques using butyl gum tape and termination bars, or structural "C" Channels fastened with FBC Approved concrete fasteners 6-in o.c. at perimeters and all roof penetrations	Finish flashed onto the air sealed field of the roof membrane in accordance with KELLY CO-2001, INC. published requirements	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-142.5
C-4	Structural concrete	Perimeter roof deck to vertical wall joints, through-roof-deck penetrations and deck joints are air sealed with Carlisle "Sure-Weld" or "Sure-Weld EXTRA" fully adhered to the roof deck and flashed on to the perimeter and through deck penetrations.	(Optional) Siplast "Paradiene 20 TG", torch-applied followed by Siplast "Paradiene 30 FR TG", torch-applied	(Optional) UL Classified, FBC Approved rigid roof insulation, any thickness, mechanically attached or loose-laid.	Min. 0.5-inch Dens Deck, SECUROCK Glass-Mat Roof Board	Carlisle "Sure-Weld" or "Sure-Weld EXTRA"	Loose laid or adhered in Carlisle "Sure-Weld Bonding Adhesive", contact application at 1.67 gal/square. The membrane is directly terminated (secured) to the concrete deck with air seal termination techniques using butyl gum tape and termination bars or structural "C" Channels fastened with FBC Approved concrete fasteners 6-in o.c. at perimeters and all roof penetrations	Finish flashed onto the air sealed field of the roof membrane in accordance with KELLY CO-2001, INC. published requirements	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-142.5
C-5	Structural concrete	Perimeter roof deck to vertical wall joints, through-roof-deck penetrations and deck joints are air sealed with "KELLY CPA (PVC)" or "2001 CPA (PVC)" fully adhered to the roof deck and flashed on to the perimeter and through deck penetrations.	(Optional) Siplast "Paradiene 20 TG", torch-applied followed by Siplast "Paradiene 30 FR TG", torch-applied	(Optional) UL Classified, FBC Approved rigid roof insulation, any thickness, mechanically attached or loose-laid.	Min. 0.5-inch Dens Deck, SECUROCK Glass-Mat Roof Board	"KELLY CPA (PVC)" or "2001 CPA (PVC)"	Loose laid or adhered in "Sarnacol 2121", wet-lay application at 0.75 to 2.25 gal/sq. or "Sarnacol 2170", contact application at 1.25 gal/sq. The membrane is directly terminated (secured) to the concrete deck with air seal termination techniques using butyl gum tape and termination bars or structural "C" Channels fastened with FBC Approved concrete fasteners 6-in o.c. at perimeters and all roof penetrations	Finish flashed onto the air sealed field of the roof membrane in accordance with KELLY CO-2001, INC. published requirements	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-142.5

TABLE 4A: RECOVER APPLICATIONS, CONCRETE DECK
SYSTEM TYPE G: AIR SEALED EXISTING ROOF, OPTIONAL INSULATION, ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"

System No.	Substrate (Note 12)	Perimeter Air Seal	Deck Air Seal	Insulation	Roof Cover		MDP (psf)
					Type	Valve	
R-1	Existing UL Classified roof assembly over structural concrete	Minimum 18-inch wide strips min 4 mil reinforced polyethylene or Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)" adhered to the concrete deck at the entire perimeter with KELLY CO-2001, INC. specified adhesive or sealant. Air seal should be bonded so as to permit wrapping over the top of any insulation or barrier board, a min of 6 inches.	Any joints or holes through the existing roof are sealed in accordance with KELLY CO-2001, INC. specifications.	(Optional) Any UL Classified, FBC Approved roof insulation and/or coverboard combination, any thickness, loose-laid with staggered joints	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough", "Sure-Tough FR", "Sure-Weld" or "Sure-Weld EXTRA" or "KELLY CPA (PVC)" or "2001 CPA (PVC)"	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-75.0

TABLE 4B: RECOVER APPLICATIONS, CONCRETE DECK
SYSTEM TYPE G: AIR SEALED DECK, OPTIONAL INSULATION, ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"

System No.	Substrate (Notes 1 & 12)	Deck Air Seal	Gravel Mat	Insulation	Coverboard	Roof Cover				MDP (psf)
						Type	Attach	Perimeters & Penetrations	Valve	
R-2	Existing UL Classified roof assembly over structural concrete	Perimeter roof deck to vertical wall joints, through-roof-deck penetrations and deck joints are air sealed with Carlisle "Sure-Tough", or "Sure-Tough FR" fully adhered to the roof deck and flashed on to the perimeter and through deck penetrations.	(Optional) Loose laid gravel mat	(Optional) UL Classified, FBC Approved rigid roof insulation, any thickness, mechanically attached or loose-laid.	Min. 0.5-inch Dens Deck, SECUROCK Glass-Mat Roof Board	Carlisle "Sure-Seal FR Nonreinforced", "Sure-White", "Sure-Tough" or "Sure-Tough FR"	Loose laid or adhered in Carlisle "Sure-Seal 90-8-30A Bonding Adhesive", contact application at 1.67 gal/square. The membrane is directly terminated (secured) to the concrete deck with KELLY CO-2001, INC. air seal termination techniques using butyl gum tape and termination bars, or structural "C" Channels fastened with FBC Approved concrete fasteners 6-in o.c. at perimeters and all roof penetrations	Finish flashed onto the air sealed field of the roof membrane in accordance with KELLY CO-2001, INC. published requirements	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-142.5
R-3	Existing UL Classified roof assembly over structural concrete	Perimeter roof deck to vertical wall joints, through-roof-deck penetrations and deck joints are air sealed with Carlisle "Sure-Weld" or "Sure-Weld EXTRA" fully adhered to the roof deck and flashed on to the perimeter and through deck penetrations.	(Optional) Loose laid gravel mat	(Optional) UL Classified, FBC Approved rigid roof insulation, any thickness, mechanically attached or loose-laid.	Min. 0.5-inch Dens Deck, SECUROCK Glass-Mat Roof Board	Carlisle "Sure-Weld" or "Sure-Weld EXTRA"	Loose laid or adhered in Carlisle "Sure-Weld Bonding Adhesive", contact application at 1.67 gal/square. The membrane is directly terminated (secured) to the concrete deck with air seal termination techniques using butyl gum tape and termination bars or structural "C" Channels fastened with FBC Approved concrete fasteners 6-in o.c. at perimeters and all roof penetrations	Finish flashed onto the air sealed field of the roof membrane in accordance with KELLY CO-2001, INC. published requirements	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-142.5

**TABLE 4B: RECOVER APPLICATIONS, CONCRETE DECK
SYSTEM TYPE G: AIR SEALED DECK, OPTIONAL INSULATION, ROOF COVER, KELLY CO-2001 "EQUALIZER VALVES"**

System No.	Substrate (Notes 1 & 12)	Deck Air Seal	Gravel Mat	Insulation	Coverboard	Roof Cover				MDP (psf)
						Type	Attach	Perimeters & Penetrations	Valve	
R-4	Existing UL Classified roof assembly over structural concrete	Perimeter roof deck to vertical wall joints, through-roof-deck penetrations and deck joints are air sealed with "KELLY CPA (PVC)" or "2001 CPA (PVC)" fully adhered to the roof deck and flashed on to the perimeter and through deck penetrations.	(Optional) Loose laid gravel mat	(Optional) UL Classified, FBC Approved rigid roof insulation, any thickness, mechanically attached or loose-laid.	Min. 0.5-inch Dens Deck, SECUROCK Glass-Mat Roof Board	"KELLY CPA (PVC)" or "2001 CPA (PVC)"	Loose laid or adhered in "Sarnacol 2121", wet-lay application at 0.75 to 2.25 gal/sq. or "Sarnacol 2170", contact application at 1.25 gal/sq. The membrane is directly terminated (secured) to the concrete deck with air seal termination techniques using butyl gum tape and termination bars or structural "C" Channels fastened with FBC Approved concrete fasteners 6-in o.c. at perimeters and all roof penetrations	Finish flashed onto the air sealed field of the roof membrane in accordance with KELLY CO-2001, INC. published requirements	Kelly Co-2001, Inc. "Equalizer Valves" installed in accordance with KELLY CO-2001, INC. published requirements	-142.5