



**BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION**

**MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908**

NOTICE OF ACCEPTANCE (NOA)

**Custom Seal, Inc.
708 Graham Drive
Fremont, OH 43420**

SCOPE:

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

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Custom Seal TPO Single Ply Roof Systems over Steel Deck

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

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

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

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

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

This consists of pages 1 through 12.

The submitted documentation was reviewed by Frank Zuloaga, RRC



**NOA No.: 02-0625.03
Expiration Date: 10/10/07
Approval Date: 10/10/02
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ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Single Ply
Material: TPO
Deck Type: Steel
Maximum Design Pressure -75 psf
Fire Classification: See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1			
Test			
<u>Product Name</u>	<u>Dimensions</u>	<u>Specifications</u>	<u>Product Description</u>
Custom Seal TPO	45", 75", 96", 120" or 148" wide x 100' long x 45 or 60 mils thick	TAS 131	Polyester reinforced ThermoPlastic Olefin single ply membrane.
Custom Seal Bonding Adhesive	5 gallon pails	Proprietary	Solvent based, contact adhesives for bonding of roof membrane to substrate.
Custom Seal Metal Anchor Bar	1" wide x 0.046" thick x 10 ft. long	TAS 110	AZ55 Galvalume coated steel batten bar with min 0.25 or 0.28in. diameter countersunk holes spaced 6 in. o.c. for mechanical attachment of membrane
Custom Seal Polymer Batten Bar	1" wide x 0.05" thick x 250' long. Holes pre-punched 6" o.c.	Proprietary	Batten strip for mechanical attachment of membrane

APPROVED INSULATIONS:

TABLE 2		
<u>Product</u>	<u>Product Description</u>	<u>Manufacturer</u> (With current NOA)
Custom Seal ISO 3	Isocyanurate insulation	Custom Seal, Inc.
Custom Seal ISO 5	Isocyanurate insulation	Custom Seal, Inc.
Custom Seal Isofiber 5	Isocyanurate insulation with wood fiberboard facer.	Custom Seal, Inc.
Custom Seal High Density Fiberboard	Wood fireboard insulation	Custom Seal, Inc.
Custom Seal FM-90 High Density Fiberboard	Wood fiberboard insulation	Custom Seal, Inc.
AC Foam II	Isocyanurate insulation	Atlas Roofing Corp.
AC Foam Composite	Isocyanurate insulation with perlite facer	Atlas roofing Corp.



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<u>Product</u>	<u>Product Description</u>	<u>Manufacturer</u> (With current NOA)
E'NRG'Y 2 Plus	facers Isocyanurate insulation with wood fiberboard facer	John Manville
Multi-Max FA	Isocyanurate insulation	R-Max, Inc.
Thermarroof Composite	Isocyanurate insulation with perlite facer	R-Max, Inc.
High Density Fiberboard	Wood fiberboard insulation	Generic
Dens-Deck	Silicon treated gypsum	G-P Gypsum

APPROVED FASTENERS:

TABLE 3

<u>Fastener Number</u>	<u>Product</u>	<u>Product Description</u>	<u>Manufacturer</u> (With current NOA)
1.	Construction Fasteners	Insulation and membrane fasteners	Construction Fasteners
2.	Buildex Fasteners	Insulation and membrane fasteners	ITW Buildex Corp.
3.	Olympic Fasteners	Insulation and membrane fasteners	Olympic Manufacturing
4.	Tru-Fast Fasteners	Insulation and membrane fasteners	Tru-Fast Corporation
5.	Custom Seal Fasteners	Insulation and membrane fasteners	Custom Seal, Inc.

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
Factory Mutual Research	3009797	Wind Uplift, TAS 114 (FMRC 4470)	02/04/02
	3007119	Wind Uplift, TAS 114, (FMRC 4470)	01/02/02
	3005794	Wind Uplift, TAS 114, (FMRC 4470)	12/13/01
	3002357	Fire Classification, TAS 114, (FMRC 4470)	05/16/00
	3005415	Wind Uplift, TAS 114, (FMRC 4470)	02/08/00
	3002775	Wind Uplift, TAS 114, (FMRC 4470)	09/16/99
	3000919	Wind Uplift, TAS 114, (FMRC 4470)	04/07/99
	3003690	Wind Uplift, TAS 114, (FMRC 4470)	03/29/99



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<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
	3B9A2.AM	Wind Uplift, TAS 114, (FMRC 4470)	01/25/99
	4B1A9.AM	Wind Uplift, TAS 114, (FMRC 4470)	09/09/98
	1D9A7.AM	Fire Classification, TAS 114, (FMRC 4470)	07/31/98
	1D9A0.AM	Seam Peel Adhesion, TAS 114, (FMRC 4470)	07/30/98
	1D0A3.AM	Wind Uplift, TAS 114, (FMRC 4470)	09/24/97
	1B0A9.AM	Wind Uplift, TAS 114, (FMRC 4470)	05/09/97
Exterior Research & Design, LLC.	8054.02.02-1	Physical Properties TAS 131	02/22/02
Underwriters Laboratories, Inc.	01NK14490	Fire Classification	06/01/01
	96NK22037	TAS 114, (UL 790)	03/10/97
	01NK25823	Wind Uplift, TAS 114, (UL 1897)	07/02/01



APPROVED ASSEMBLIES:

- Membrane Type:** Single Ply, Thermoplastic, TPO
- Deck Type 2I:** Steel, Insulated, New Construction or Reroof
- Deck Description:** 18-22 ga. Steel
- System Type C (1):** Membrane fully adhered over mechanically fastened insulation.

All General and System Limitations apply.

Base Insulation Layer (Optional)	Insulation Fasteners (Table 3)	Fastener Density/ft²
Custom Seal ISO 3 (flat or tapered), AC Foam II (flat or tapered) Minimum 1.3" thick	N/A	N/A
Custom Seal ISO 5 (flat or tapered) Minimum 1.4" thick	N/A	N/A
AC Foam Composite (flat or tapered), Multi-Max FA, Thermo roof Composite Minimum 1.5" thick	N/A	N/A
Custom Seal Isofiber 5 Minimum 1.9" thick	N/A	N/A
Custom Seal high Density Fiberboard, High Density Fiberboard Minimum ½" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Custom Seal ISO 3 or AC Foam II Minimum 1.5" thick	Any fasteners in table 3	1:2 ft ²
Minimum 2" thick	Any fasteners in table 3	1:4 ft ²
Dens-Deck Minimum ¼" thick	Any fasteners in table 3	1:1.8 ft ²
Membrane:	Custom Seal TPO adhered to insulation using Custom Seal Bonding Adhesive applied at 30 ft ² /gal (0.7 m ² /L) to both the substrate and the bottom side of the roof cover for a combined rate of 60 ft ² /gal (1.5 m ² /L)	
Maximum Design Pressure:	-45 psf; (See General Limitation #9)	



Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 7I: Steel, Insulated, New Construction or Reroof

Deck Description: 18-22 ga. steel

System Type D (1): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 or A1008 Grade 33 or Grade 80 steel deck (see fastening options for specific steel grade)

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Custom Seal ISO 3 (flat or tapered), AC Foam II (flat or tapered) Minimum 1.3” thick	N/A	N/A
Custom Seal ISO 5 (flat or tapered) Minimum 1.4” thick	N/A	N/A
AC Foam Composite (flat or tapered), Multi-Max FA, Thermaroom Composite Minimum 1.5” thick	N/A	N/A
Custom Seal Isofiber 5 Minimum 1.9” thick	N/A	N/A
Custom Seal high Density Fiberboard, High Density Fiberboard Minimum ½” thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions greater than 4 ft., and four fasteners for any insulation having no dimension greater than 8 ft.

Barrier: (Optional) Minimum 5/8” gypsum board or ¼” Dens-Deck, loose laid

Membrane: Custom Seal TPO attached to deck as follows:

Fastening #1: Custom Seal RM Seam Plates and Custom Seal #14 screws or Custom Seal RM II Discs and Olympic # 14 Heavy Duty Screws, spaced at a max. 6 in o.c. within minimum 4.5 in (114 mm) wide laps, which are spaced at a max 70.5 in. (1791mm) o.c. and sealed with a minimum 1.5 in (38 mm) heat weld.
Minimum Grade A steel deck.

Fastening #2: Custom Seal #15 (WH) screws and Custom Seal (WH) Barbed Plates or Custom Seal #15 XHD screws and Custom Seal 2-3/8” barbed seam plates or Olympic XHD screws and XHD plates spaced at a maximum 6 in (150mm) o.c. within the minimum 6 in (150 mm) wide laps, which are spaced at a maximum 114 in (2895 mm) o.c. and sealed with a minimum 1.75in (45mm) heat weld placed on the outside edge of the lap. **Minimum Grade A steel deck.**



- Fastening #3:** Custom Seal #15 (WH) and Custom Seal Polymer Batten Strip. Screws are spaced at maximum 12 in (305 mm) o.c. within the minimum 4.5 in (114 mm) wide laps, which are spaced at maximum 140.5 in (3,568 mm) o.c. and sealed with a minimum 1.5 in (40 mm) wide heat weld placed on the outside edge of the batten strip and a minimum 1.0in (25 mm) wide heat weld placed on the inside edge of the batten strip. **Minimum Grade A steel deck.**
- Fastening #4:** SFS Stadler Extra Load Fastener screws spaced at a max 12 in. (305 mm) o.c. through Custom Seal Anchor Bars which are placed within the minimum 4.5 in (114mm) wide laps, which are spaced at a max 70 in (1778mm) o.c., and sealed with a min. 1.5 in wide heat weld placed on both sides of the anchor bar. **Minimum Grade E steel deck.**
- Fastening #5:** Custom Seal XHD Barbed Seam Plates and Custom Seal #15 XHD or Buildex #15 SPM screws or Olympic XHD 2-3/8” in. barbed plates and Olympic XHD screws spaced at 12 in. (305mm) o.c. within the minimum 4.5 in. (114mm) wide laps, which are spaced at 70 in (1778mm) o.c. and sealed with a minimum 1.5 in (38mm) heat weld. **Minimum Grade E steel deck.**
- Fastening #6:** Custom Seal #15 (WH) screws and Custom Seal (WH) barbed plates or Custom Seal #15 XHD screws and Custom Seal 2-3/8” barbed seam plates or Olympic XHD screws and XHD plates spaced at a maximum 12in (352 mm) o.c. within the minimum 6in (150 mm) wide laps, which are spaced at a maximum 90 in (2285 mm) o.c. and sealed with a minimum 1.75 in (45 mm) heat weld placed on the outside edge of the lap. **Minimum Grade E steel deck.**
- Fastening #7:** Custom Seal #15 (WH) screws and Custom Seal (WH) Barbed plates or Olympic XHD screws and XHD plates spaced at 12 in. (305 mm) o.c. within the minimum 5 in (127 mm) wide laps, which are spaced at 70 in (1778 mm) o.c. and sealed with a minimum 2 in (51 mm) wide heat weld placed on the outside edge of the lap. **Minimum Grade E steel deck.**

Maximum Design Pressure:

-45 psf (See General Limitation #7)



Membrane Type: Single Ply, Thermoplastic, TPO
Deck Type 7I: Steel, Insulated, New Construction or Reroof
Deck Description: 18-22 ga. steel
System Type D (2): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 Grade 80 or A611 Grade E steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 6ft o.c. with Buildex Tek 4 or Tek 5 fasteners spaced max. 6 in o.c.

One or more layers of any of the following insulation under those listed Top layer:

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Custom Seal ISO 3 (flat or tapered), AC Foam II (flat or tapered) Minimum 1.3" thick	N/A	N/A
Custom Seal ISO 5 (flat or tapered) Minimum 1.4" thick	N/A	N/A
AC Foam Composite (flat or tapered), Multi-Max FA, Thermarroof Composite Minimum 1.5" thick	N/A	N/A
Custom Seal Isofiber 5 Minimum 1.9" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions greater than 4 ft., and four fasteners for any insulation having no dimension greater than 8 ft.

Barrier: (Optional) Minimum 5/8" gypsum board or 1/4" Dens-Deck, loose laid

Membrane: Custom Seal TPO attached to deck as follows:

Fastening #1: Custom Seal #15 XHD screws spaced max. 6 in. (152 mm) o.c. through Custom Seal bar anchors. The bars and fasteners are placed within min. 4.5 in. (114 mm) wide laps, which are spaced at max 70.25 in. (1784 mm) o.c. and sealed with a min. 0.75 in. (19 mm) wide heat weld on the inside of the lap and a min 1 in. (25 mm) wide heat weld on the outside of the lap.
(Maximum Design Pressure: -75 psf, See General Limitation #7).

Fastening #2: Custom Seal #15 XHD screws spaced max 12 in. (305 mm) o.c. through Custom Seal bar anchors. The bars and fasteners are placed within min. 4.5 in (114 mm) wide laps, which are spaced at max 70.25 in. (1784 mm) o.c. and sealed with a min. 0.75 in. (19 mm) wide heat weld on the inside of the lap and a min. 1 in. (25 mm) wide heat weld on the outside of the lap.
(Maximum Design Pressure: -52.5 psf, See General Limitation #7).



Fastening #3: Custom Seal #15 XHD screws spaced max 6 in. (152 mm) o.c. through Custom Seal bar anchors. The bars and fasteners are placed within min. 4.5 in. (114 mm) wide laps, which are spaced at max. 142.5 in. (3620 mm) o.c. and sealed with a min. 1 in. (25 mm) wide heat weld on the inside of the lap and a min. 1 in. (25 mm) wide heat weld on the outside of the lap.

(Maximum Design Pressure: -52.5 psf, See General Limitation #7).

Fastening #4: Custom Seal #15 (WH) screws and Custom Seal Polymer Batten Strip. Screws are spaced at maximum 6 in. (152 mm) o.c. within minimum 5 in. (127 mm) wide laps, which are spaced at maximum 144 in (3,658 mm) o.c. and sealed with a minimum 1.5 in. (40 mm) wide heat weld placed on the outside edge of the batten strip. *(Maximum Design Pressure: -52.5 psf, See General Limitation #7).*

Maximum Design Pressure:

See Membrane Fastening Options above.



Membrane Type: Single Ply, Thermoplastic, TPO

Deck Type 7I: Steel, Insulated, New Construction or Reroof

Deck Description: 18-22 ga. steel

System Type D (3): Membrane attached over preliminary fastened insulation

All General and System Limitations apply.

Deck: 18-22 ga., 1.5 in (38mm) deep, ASTM A653 Grade 80 or A611 Grade E steel deck secured to 0.25 in (6mm) structural supports spaced a maximum 5.5 ft o.c. with Buildex Teks 4 or Teks 5 fasteners spaced max. 6 in o.c.

<u>Insulation Base Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
One or more layers of any of the following insulation under those listed Top layer:		
Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Custom Seal ISO 3 (flat or tapered), AC Foam II (flat or tapered) Minimum 1.3" thick	N/A	N/A
Custom Seal ISO 5 (flat or tapered) Minimum 1.4" thick	N/A	N/A
AC Foam Composite (flat or tapered), Multi-Max FA, Thermarroof Composite Minimum 1.5" thick	N/A	N/A
Custom Seal Isofiber 5 Minimum 1.9" thick	N/A	N/A

Note: All insulation shall be preliminary attachment prior to the installation of the roofing membrane at a minimum application rate of two fasteners per board for insulation boards having no dimensions greater than 4 ft., and four fasteners for any insulation having no dimension greater than 8 ft.

Barrier: (Optional) Minimum 5/8" gypsum board or 1/4" Dens-Deck, loose laid

Membrane: Custom Seal TPO attached to deck as follows:

Fastening: Custom Seal #15 XHD screws spaced max. 6 in. (152 mm) o.c. through Custom Seal bar anchors. The bars and fasteners are placed within min. 4.5 in. (114 mm) wide laps, which are spaced at max 142.5 in. (3620 mm) o.c. and sealed with a min. 1 in. (25 mm) wide heat weld on the inside of the lap and a min 1 in. (25 mm) wide heat weld on the outside of the lap.

Maximum Design Pressure: -60 psf (See General Limitation #7)



STEEL DECK SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.
2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.



GENERAL LIMITATIONS:

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

END OF THIS ACCEPTANCE

