

Bulletin

Roof Testing Laboratory (ISO/IEC 17025)

UL Third Party Test Data Program participant



Roof System Dynamic Wind Uplift Resistance Results

File number:	DRS-23013273
IKO number:	MARS021
Test date:	2024-03-13
Reappraisal date:	2027-07-05



INNOVI TPO 10' X 60 MIL, MECHANICALLY ATTACHED

(MARS) MECHANICALLY ATTACHED ROOFING SYSTEM

Tested Roofing System Summary

Cap sheet membrane:	TPO membrane / Mechanically fastened
Base sheet membrane:	n/a
Cover board:	Optional
Insulation (top):	Rigid polyisocyanurate foam insulation board 4 x 8 ft x 1½ in / Mechanically fastened
Additional insulation (bottom):	Rigid polyisocyanurate foam insulation board 4 x 8 ft x 1½ in / Loose laid
Vapour barrier:	Plastic sheeting / Loose laid
Thermal barrier:	Optional
Decking:	Steel deck

Dynamic Uplift Resistance (DUR) as per CSA A123.21

System Designation	Sustained Pressure (S.P.) (measured)	As per CSA A123.21:20 DUR = (S.P. x 0,65)	As per CSA A123.21:14 DUR = (S.P. ÷ 1,5)
A	-3,0 kPa (-63 psf)	-2,0 kPa (-41 psf)	-2,0 kPa (-42 psf)

According to the scope of accreditation published on the SCC website
File No. 797



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Products

CAP SHEET MEMBRANE				
TESTED PRODUCT: Membrane composed of thermoplastic polyolefin compound laminated on both side of a polyester reinforcement grid.				
System	Securement Method			
A	Mechanically fastened at 12 in o.c. (in overlaps)			
ELIGIBLE PRODUCT(S)				
IKO Industries	Innovi TPO 60 mil	Innovi TPO 80 mil		

BASE SHEET MEMBRANE	
TESTED PRODUCT: n/a	

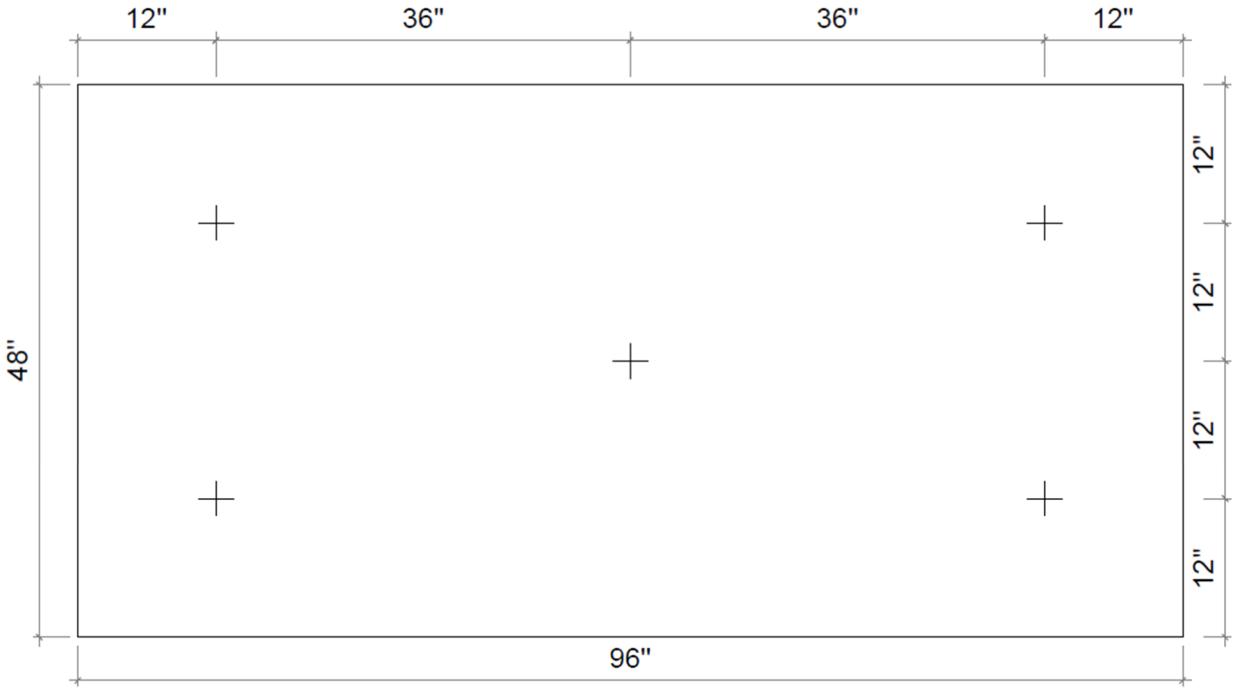
COVER BOARD				
TESTED PRODUCT: Optional				
ELIGIBLE THICKNESS(ES)				
½ in minimum				
SECUREMENT METHOD				
Same as insulation (if used, insulation fasteners will not be needed).				
ELIGIBLE PRODUCT(S)				
IKO Industries	IKOTherm CoverShield	IKOTherm ShieldPlus		

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INSULATION (top)				
TESTED PRODUCT: Rigid insulation board composed of a closed-cell polyisocyanurate core foamed between two fiber-reinforced organic facers.				
System	Securement Method		Securement Rate	
A	Mechanically fastened		5 fasteners per 4 x 8 ft board	
ELIGIBLE THICKNESS(ES)				
1½ in minimum				
SECUREMENT METHOD				
Screws and plates				
SECUREMENT PATTERN				
				
ELIGIBLE PRODUCT(S)				
IKO Industries	IKOTerm	IKOTerm III	IKOTerm 25 PSI	IKOTerm III 25 PSI
	*IKOTerm Tapered	*IKOTerm III Tapered	*IKOTerm 25 PSI Tapered	*IKOTerm III Tapered 20 PSI

*Always respect board minimum eligible thickness.

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ADDITIONAL INSULATION (bottom and/or additional)				
TESTED PRODUCT: Rigid insulation board composed of a closed-cell polyisocyanurate core foamed between two fiber-reinforced organic facers.				
System	Securement Method		Securement Rate	
A	Loose laid		n/a	
ELIGIBLE THICKNESS(ES)				
1½ in minimum				
ELIGIBLE PRODUCT(S)				
IKO Industries	IKOTerm	IKOTerm III	IKOTerm 25 PSI	IKOTerm III 25 PSI
	*IKOTerm Tapered	*IKOTerm III Tapered	*IKOTerm 25 PSI Tapered	*IKOTerm III Tapered 20 PSI

*Always respect board minimum eligible thickness.

VAPOUR BARRIER				
TESTED PRODUCT: Polyethylene plastic sheeting.				
System	Securement Method		Primer	
A	Loose laid		n/a	
ELIGIBLE PRODUCT(S)				
Generic	6 mil polyethylene film	Kraft paper		
IKO Industries	*MVP	*MVP Sand	*Armourbond Flash Sand	ArmourGard-A Vapour Retarder
	ArmourGard Ice and Water Protector Commercial	AcrylicStick SA (primerless)		

* These membranes may be used with an optional primer – see adhesive section for more details.

THERMAL BARRIER				
TESTED PRODUCT : Optional.				
ELIGIBLE PRODUCT(S)				
Georgia-Pacific	DensDeck	DensDeck Prime		
CGC	Securock Gypsum Fiber Roof Board			
Unifix	PermaBase Dek			
Application method: loose laid, adhered or mechanically fastened. The securement method, rate, and thickness to meet codes requirements, are the designer's responsibilities.				

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FASTENERS (see general note #3)			
TESTED PRODUCT(S)			
System	Screws		Plates
A	InnoviFast Heavy Duty (HD) Fastener		InnoviFast 2-3/8 in HD Seam Plate
	InnoviFast Insulation Fastener		InnoviFast Insulation Plate
FASTENERS PULL-OUT RESISTANCE			
InnoviFast Heavy Duty (HD) Fastener: 2220 N (499 lbf)			
InnoviFast Insulation Fastener:1572 N (353 lbf)			
ELIGIBLE PRODUCT(S)			
Insulation	IKO Industries	InnoviFast Insulation Fastener	InnoviFast Insulation Plate
		InnoviFast All Purpose (AP) Fastener	
		InnoviFast Heavy Duty (HD) Fastener	
	SFS	Dekfast DF #12-PH3	Dekfast PLT-R3 Plate
		Dekfast DF #14-PH3	
		Dekfast DF #15-PH3	
	Altenloh Brinck & Co US Inc.	Trufast #12 DP	Trufast 3 in Metal Insulation Plates
		Trufast #14 DP	
		Trufast #15 DP	
Cap sheet	IKO Industries	InnoviFast Heavy Duty (HD) Fastener	InnoviFast 2-3/8 in HD Seam Plate
	SFS	Dekfast DF #15-PH3	Dekfast PLT-R-2-3/8-6B
	Altenloh Brinck & Co US Inc.	Trufast #15 DP	Trufast 2,4 in Metal Seam Plates

ADHESIVE
TESTED PRODUCT: n/a

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DECKING				
PRODUCT: Steel deck.				
Grade	Thickness (in)	Yield strength (ksi)	Span spacing (in)	Fasteners spacing (in)
230	0,03	33	54	6
Additional testing could be performed on concrete, plywood, planks or other substrates to assess eligibility to possible decking equivalencies. On a building, the attachment of the decking to the supporting structure must be strong enough to resist wind uplift loads (as defined per NBC requirements).				

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General Notes

1. Source:

This publication is based on a test conducted by **EXP Services inc.**

2. Deck equivalency products:

Steel deck greater than 22 gage and/or 33 ksi. Wooden deck which testing gives equivalent or superior pull-out resistance than the measured value specified in the "Fasteners Pull Out Resistance" section. For concrete deck, communicate with EXP for possibilities and guidelines.

3. Fasteners Pull Out Resistance:

Tests conducted according to ANSI/SPRI FX-1 standard, over 22 gage, 33 ksi steel deck (unless stated otherwise).

4. Adhesive Pull Resistance (when applicable):

Tests conducted according to ANSI/SPRI IA-1 standard over steel deck (unless stated otherwise) or, according to ASTM D1623 standard.

5. Note on adhesive:

It is EXP opinion that the application of the adhesive beads in an "S" or straight-line arrangement will not affect the results of this publication. The intention at the job site should be that the bead spacings be distributed in reasonably straight lines on the substrate, to come as close as possible to the theoretical patterns when the boards are laid in. Comply with all additional manufacturer's requirements regarding the use of adhesives, among other things, the width of the bead.

6. Liquids, primers, and adhesives:

Observe all application rates specified by the manufacturers, as well as any additional requirements when applying liquids, primers and adhesives.

7. Equivalent products:

Only the products listed in this report under eligible products are deemed acceptable as substitute to the tested products. Any other modifications must be formally requested to EXP to be studied for approval.

8. Optional components:

Any components of this roofing system listed as optional, may be removed from the roof design. Inclusion or exclusion of the said component having no effect on the published dynamic uplift resistance results. (DUR).

9. Building Wind Load Calculation:

An online calculator can compute the Wind Load of any given building, for field, perimeter, and corners, as per 2015 NBC requirement. It will also provide the dimensions of the perimeter and corner areas. The calculator is available at <https://nrc.canada.ca/en/research-development/products-services/software-applications/wind-load-calculators-roof-cladding-vegetated-roof-assembly>

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10. Dynamic Uplift Resistance (DUR) calculation:

CSA A123.21 (2014 and earlier) specified to divide the measured result by 1,5 to obtain the effective wind resistance (DUR).

CSA A123.21 (2020) suggest multiplying the measured result with 0,65 to obtain the effective wind resistance (DUR).

11. Technical Advisories:

This roof system assessment reports must be read in conjunction with any issued technical advisories from EXP.

12. Notice:

EXP reserves the right to withdraw, without prior notice, any Bulletin of Roof System Dynamic Wind Uplift Resistance Results published and/or make any necessary corrections.

The information in this roofing system report (the "Report") are based on the tests run by EXP of certain combination of materials in a specific and controlled condition to determine the resistance of different roofing systems to wind uplift forces (the "Test"). The results of the Test are subject to certain prerequisite conditions and assumptions made during the Test. In this regard, the Report is for the exclusive use of EXP client for whom the Report was prepared. The information contained in the Report must not be reproduced, used, or relied upon, in whole or in part without the written consent of EXP. Any third-party user assumes sole responsibility for the use it makes of the information in the Report including but not limited to any decision to purchase roofing material in reliance of the information found in the Report or on the Site. **Exp disclaims all warranties as to the accuracy, completeness, or adequacy of the information in the Report or on the Site and accepts no responsibility for damages suffered by any third party arising out of decisions made or actions based on the Report.**

13. Version tracking table:

2024-07-05	First edition.

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