## Bulletin

### **Roof Testing Laboratory (ISO 17025)**

UL Third Party Test Data Program participant



## Roof System Dynamic Wind Uplift Resistance Results







### MODIFIED BITUMEN SYSTEM COMPRISING COMPOSITE COVER BOARD AND DEXCELL THERMAL BARRIER

### (AARS) ADHESIVE APPLIED ROOFING SYSTEM

### **Tested Roofing System Summary**

Cap sheet membrane:	Modified bitumen membrane / Fused		
Base sheet membrane:	Included to cover board		
Cover board:	Board composed of a base sheet membrane laminated to a high density polyisocyanurate board 3 x 8 ft x ½ in / Adhered		
Insulation:	Polyisocyanurate foam insulation board 4 x 4 ft x 1½ in / Adhered		
Additional insulation:	Polystyrene insulation board 4 x 4 ft x 2 in / Adhered		
Vapour barrier:	Self-adhesive membrane		
Thermal barrier:	Fire and moisture resistant cement board 4 x 4 ft x 7/16 in / Adhered		
Decking:	Steel deck		

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

System Designation  Measured testing value According to CSA A123.21:20		Result reduced by a factor of 1,5 According to CSA A123.21:14
Α	-7,1 kPa (-149 psf)	-4,7 kPa (-99 psf)

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### **Products**

		CAP SHEET MEMBRANE							
TESTED PRODUCT: N	Membrane composed of a r	non-woven polyester mat s with SBS modified bitumen		r strands and saturated					
System		Application	on Method						
Α		Fus	sed						
	ELIGIBLE PRODUCT(S)								
	System	with fused cap sheet me							
	Torchflex TP-250-Cap	Torchflex TP-180-Cap	Torchflex TP-250-Cap 5 mm	Torchflex PrevENt TP- 180					
	Torchflex PrevENt TP- 250	Torchflex PrevENt Premium TP-250	Torchflex 180-FF	Torchflex 180-SF <sup>(1)</sup>					
IKO	Torchflex TP-HD-Cap	Torchflex TP-HD-FF- Base	PrevENt TP-HD-Cap	PrevENt TP Premium					
	ArmourCool Granular TP-HD-Cap Carrara ArmourCool	ArmourCool HD-Cap	ArmourCool	Carrara ArmourCool- 250					
LEXCOR Vanguard TP 250 Cap Vang		Vanguard 180 FF	Vanguard 180 SF <sup>(1)</sup>						
Johns Manville	DynaWeld Cap 180	DynaWeld Cap 180 FR	DynaWeld Cap 250	DynaWeld Cap 180 FR CR G					
Johns Manville	DynaWeld 180 S <sup>(1)</sup>	DynaWeld 250 FR	DynaWeld Cap FR CR (coated)	DynaKap FR T1 HW					
	System with asp	phalt type III applied cap	sheet membrane						
	Modiflex MP-180-SS <sup>(1)</sup>	Modiflex MP-180-Cap	Modiflex MP-250-Cap	Modiflex MP-HD-Cap					
IKO	Modiflex MP-HD-FS- Base	Modiflex MP-HD-SS- Base <sup>(1)</sup>	PrevENt MP Premium 250	PrevENt MP-250 Cap					
	PrevENt MP-HD-Cap								
LEXCOR	Vanguard 180 SS <sup>(1)</sup>	Vanguard 250 MC							
Johns Manville	DynaLastic 250 FR	DynaLastic 180 FR CR G	DynaLastic 180 S <sup>(1)</sup>	DynaLastic 180 Cap					
Joins Manvine	DynaLastic 250 Cap	DynaKap T1	DynaKap FR T1						
System wi	th asphalt applied cap sh	eet membrane & gravel s	urface embedded in asp	halt, type III					
IKO	Modiflex MP-180-SS								
LEXCOR	Vanguard 180 SS								
Johns Manville	DynaLastic 180 S								

<sup>(1)</sup> these membranes can be covered with a finishing surface; asphalt and gravel, reflective coating, others.



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### **BASE SHEET MEMBRANE**

TESTED PRODUCT: Included to cover board.



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### **COVER BOARD**

TESTED PRODUCT: 2-in-1 composite board composed of a bituminous base sheet membrane factory-laminated to a high density polyisocyanurate board. The base sheet membrane is composed of a non-woven fiberglass or polyester material, enhanced with fiberglass strands and SBS modified bitumen.

System	Application Method	Fastening Rate
Α	Adhered	Ribbons at 6 in o.c.

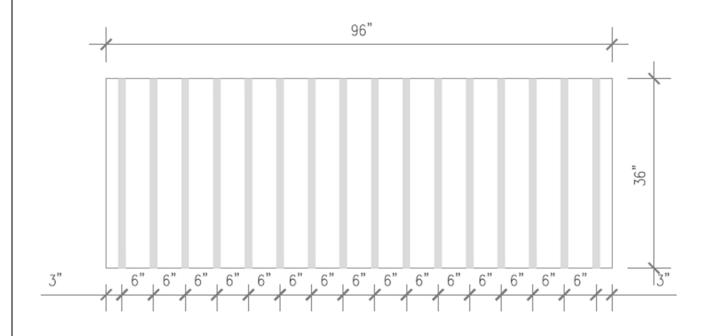
### **ELIGIBLE THICKNESS(ES)**

½ in

### **FASTENING METHOD**

Insultac II adhesive

### **FASTENING PATTERN**



ELIGIBLE PRODUCT(S)						
Lexcor	Lexbase R+	Lexbase R+ sanded				



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		INSULATION (Top Row)		
TESTED PRODUCT	: Closed cell polyisocyanura	ate foam board, laminated	on both sides to a black fel	t covering (no asphalt)
System	Application	reinforced with fiberglass. on Method	Fastoni	ng Rate
A		ered		at 6 in o.c.
		ELIGIBLE THICKNESS(ES		3.0 11 0.0.
		1½ in minimum	-1	
		FASTENING METHOD		
		Insultac II adhesive		
		FASTENING PATTERN		
	"84 "3", 6", 6	48"		
	1		1	
. <b></b>		ELIGIBLE PRODUCT(S)		
LEXCOR	Isolex	Isolex II		
FRANSYL	Izolon HR	Izolon THR	Izolon HD	Izolon THD
IKO	IKOTherm	IKOTherm III		
Atlas Roofing Corp.	ACFoam II	ACFoam III	ACFoam IV	

**ENRGY 3 CGF** 

**Johns Manville** 

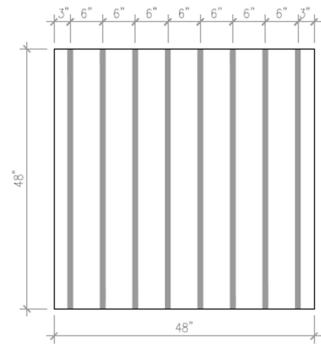
**ENRGY 3** 



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		WITO 210220
	ADDITIONAL INSULATION (Botto	om Row)
	TESTED PRODUCT: Expanded polystyrene	e insulation board.
System	Application Method	Fastening Rate
Α	Adhered	Ribbons at 6 in o.c.
	ELIGIBLE THICKNESS(ES	5)
	2 in minimum	
	FASTENING METHOD	
	Insultac II adhesive	
	FASTENING PATTERN	
	3", 6", 6", 6", 6", 6", 6"	6" 3"1



ELIGIBLE PRODUCT(S)							
FRANSYL	Izolon HR	Izolon THR	Izolon HD	Izolon THD			
LEXCOR	Isolex	Isolex II					
IKO	IKOTherm	IKOTherm III					
Atlas Roofing Corp.	ACFoam II	ACFoam III	ACFoam IV				
Johns Manville	ENRGY 3	ENRGY 3 CGF					



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VAPOUR BARRIER  TESTED PRODUCT: Self-adhesive membrane composed of a non-asphaltic adhesive backing and a reinforced surface of woven polypropylene laminated with a non-woven polyester.						
System	System Fastening Method Primer					
Α	Self-ad	dhered	Ultra	stick		
	ELIGIBLE PRODUCT(S): VAPOUR BARRIER					
Lexcor	Permate Stick					



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		THERMAL B			
ESTED PRODUC	Γ: Fire and moisture r	esistant board compose duty fiberglass-n	ed of Portland cem	ent and lightweight aggregates with he	eav
System	Aŗ	pplication Method	iodii idoore.	Fastening Rate	
Α		Adhered		Ribbons at 12 in o.c.	
		ELIGIBLE THIC	KNESS(ES)		
		7/16 in mir	nimum		
		FASTENING	METHOD		
		Insultac II a	dhesive		
		FASTENING PA	ATTERN(S)		
	+ -				
				2 3	
	×4-			12"	
				E .	
				12	
				=	
	1	48"			
	-				
		ELIGIBLE PRO	DDUCT(S)		
lational Gypsum Company	DEXcell Cemen Board		Blass Mat		
Unifix	PermaBASE [		aiu		



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### **FASTENERS**

TESTED PRODUCT(S): n/a

ADHESIVE						
	TESTED PRODUCT: Two-component low-rise urethane foam adhesive.					
System Ribbon's spacing Primer						
^	Cover board and insulation boards: 6 in o.c.		n/a			
A	Thermal barrier: 12 in o.c.		n/	/a		
	ELIGIBLE PRODUCT(S)					
Lexcor	Insultac II					

DECKING						
	PRODUCT: Steel deck.					
Grade	Grade Thickness (in) Yield strength (ksi) Span spacing (in) Fastene					
230	0,03	33	54	6		

Additional testing could be performed on concrete decks or standard 4' x 8' x 5%" plywood decks to assess eligibility for possible 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 NBCC 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:

18 to 22 gage steel deck. Wood or concrete deck which testing gave equivalent or superior uplift resistance than the value specified in the "Fasteners Pull Out Resistance" section.

#### 3. Fasteners Pull Out Resistance:

Tests were conducted in laboratory according to ANSI/SPRI FX-1 2011 standard, over a minimum of 10 test samples on a *Com-Ten* apparatus over steel deck (unless stated otherwise).

### 4. Adhesive Pull Resistance (when applicable):

Tests were conducted in laboratory over 3 test samples, according to ANSI/SPRI IA-1 2010 standard on a *Com-Ten* apparatus over steel deck (unless stated otherwise) or, according to ASTM D1623 standard over a universal press testing bench, for in-between materials.

#### 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 glue bead spacings be reasonably distributed on the substrate, in order 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.

### 6. Liquid primers and adhesives:

Please observe the application rates specified by the manufacturers, as well as any additional requirements when applying liquid 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 requested in written, on EXP application form, 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. Experimental factor:

In accordance with CSA A123.21 -14 standard, the published dynamic uplift resistance (DUR) includes a computed experimental factor of 1,5.



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### 10. Building Wind Load Calculation:

An online calculator is available at https://www.nrc-cnrc.gc.ca.

The calculator will compute, the Wind Load of any given building, for field, perimeters and corners, as per 2015 NBCC requirement, without experimental factor. It will also compute perimeters' and corner's zone dimensions.

#### 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:

2022-06-30

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			2022-06-30	
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First edition