Bulletin

Roof Testing Laboratory

Roof System Dynamic Wind Uplift Resistance Results

File Number:	IKOI-231263-02
Test Date:	2016-02-10
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PROTECTOBOARD MECHANICALLY FASTENED (9 FASTENERS)

(PARS) PARTIALLY ATTACHED (HYBRIDE) ROOFING SYSTEM

Roofing System Summary

Cap sheet membrane:	Modified bitumen membrane / Torch applied
Base sheet membrane:	Modified bitumen membrane / Torch applied
Cover board:	Support board composed of a fortified asphaltic core 1220 x 1524 x 3,2 mm (4' x 5' x ⅛") / Mechanically fastened
Insulation:	Rigid polyisocyanurate foam insulation board 1220 x 2438 x 51 mm (4' x 8' x 2") / Loose laid
Vapor barrier:	Kraft paper membrane / Spliced with Armourgard adhesive
Thermal barrier:	N/A
Decking:	Steel deck

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

System Designation	Measured Value	Computed Value (To Include 1.5 Experimental Factor)
A	-3,4 kPa (-72 psf)	-2,3 kPa (-48 psf)

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Products

CAP SHEET MEMBRANE				
TESTED PRODUCT : Membrane composed of a non-woven polyester reinforcement saturated with SBS modified bitumen				
System	**Application Method**			
A	Torch applied			
ELIGIBLE PRODUCT(S)				
IKO Industries	**Application method: torch applied**			
	Torchflex TP-180-Cap	Torchflex TP-250-Cap	Torchflex TP-250-Cap (5 mm)	PrevENt TP-250-Cap
	Armourcool Granular TP	PrevENt ArmourCool Granular TP	Carrara ArmourCool 250	PrevENt TP-HD-Cap
	PrevENt Premium TP-250-Cap	Torchflex TP-HD-Cap	ArmourCool Granular TP-HD	PrevENT ArmourCool HD-Cap
	Carrara ArmourCool HD			
	Application method: asphalt applied			
	Modiflex MP-250-Cap	PrevENt MP-250-Cap	Modiflex MP-180-Cap	Modiflex MP-HD-Cap
	PrevENt MP-HD-Cap	Any IKO organic/non-organic BUR		

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BASE SHEET MEMBRANE				
TESTED PRODUCT : Membrane composed of a non-woven fiberglass reinforcement saturated with SBS modified bitumen				
System	**Application Method**		**Row spacing**	**Fasteners spacing**
A	Torch applied		N/A	N/A
ELIGIBLE PRODUCT(S)				
IKO Industries	**Application method: torch applied**			
	Torchflex TF-95-FF-Base 2.2	Torchflex TF-95-SF-Base	Torchflex TP-180-FF-Base	Torchflex TP-180-SF-Base
	Torchflex HD-FF-Base			
	Application method: asphalt applied			
	Modiflex MF-95-Base	Modiflex MF-95-SS-Base	Modiflex MP-180-FS-Base	Modiflex MP-180-SS-Base
	Modiflex MP-180-SS-Base (3 mm)	Modiflex MP-HD-FS-Base	Modiflex MP-HD-SS-Base	

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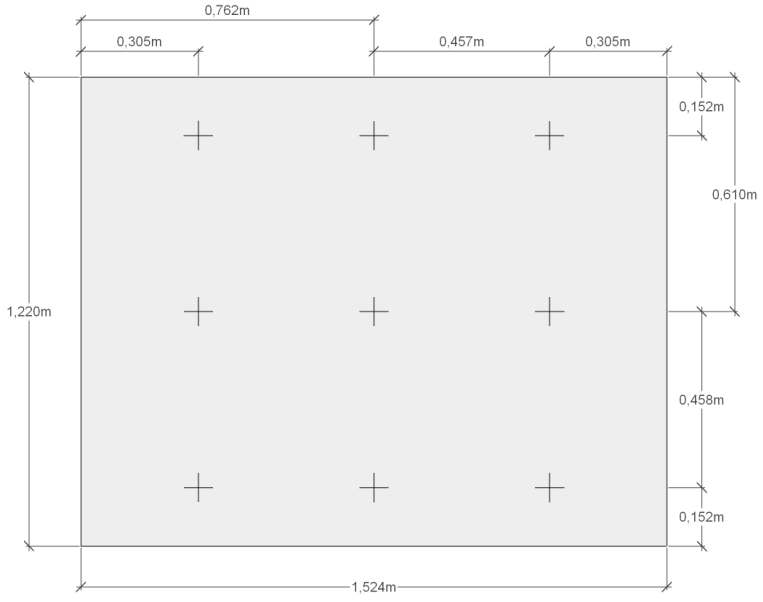
COVER BOARD		
TESTED PRODUCT: Cover board composed of a mineral-fortified asphaltic core between two layers of high-strenght reinforcing glass fiber mat		
System	**Application Method**	**Fastening Rate**
A	Mechanically fastened	9 fasteners per board 1220 x 1524 mm (4' x 5')
ELIGIBLE THICKNESS(ES)		
3,2 mm (⅛ in)		
FASTENING METHOD		
Trufast screws and plates		
FASTENING PATTERN		

System A



ELIGIBLE PRODUCT(S)				
IKO Industries	Protectoboard			

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INSULATION (Top Row)				
TESTED PRODUCT: Rigid insulation board composed of a closed-cell polyisocyanurate foam, between two fiber-reinforced facer				
System	**Application Method**		**Fastening Rate**	
A	Loose laid		N/A	
ELIGIBLE THICKNESS(ES)				
Between 25 to 102 mm (1 to 4 in)				
ELIGIBLE PRODUCT(S)				
IKO Industries	IKOTherm			

INSULATION (Bottom Row)
TESTED PRODUCT: N/A

VAPOR BARRIER				
TESTED PRODUCT: Membrane composed of two layers of kraft paper bonded together with asphalt				
System	**Fastening Method**		**Primer**	
A	Spliced with Armourgard adhesive		N/A	
ELIGIBLE PRODUCT(S)				
IKO Industries	Armourgard Vapour Barrier Adhesive			
ELIGIBLE PRODUCT(S) over thermal barrier : N/A				

THERMAL BARRIER
TESTED PRODUCT : N/A

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FASTENERS PULL OUT RESISTANCE		
TESTED PRODUCT(S): #14 roofing fasteners		
System	**Screws**	**Plates**
A	#14 HD x 76 mm (3 in)	Round of 76 mm (3 in)
FASTENERS MEASURED PULL OUT RESISTANCE		
189 kgf (417 lbf)		
ELIGIBLE PRODUCT(S)		
Trufast (screws)	#14 HD x 76 mm (3 in)	
Trufast (plates)	Round metal insulation plates	

ADHESIVE				
TESTED PRODUCT: Vapour barrier adhesive composed of fluidized bitumen				
System	**Ribbon's spacing**		**Primer**	
A	For splicing of vapour barrier		N/A	
ELIGIBLE PRODUCT(S)				
IKO Industries	Armourgard Vapour Barrier Adhesive			

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General Notes

1. **Decking:**
   Tests were performed over a standard roll formed steel deck profile, with a galvanized or aluminum / zinc alloy coating finished, as per ASTM A653, A792, A1008 or CSSBI 10M standards, bearing a thickness of 0.76 mm (0.03 inch) minimum (commonly defined as 22 gauge), corresponding to the ASTM A653M grade SS 230, having a yield point of 230 MPa (33 ksi) and a tensile strength of 310 MPa (45 Ksi). The tests could also be performed on concrete deck or standard 4′ x 8′ x ⅝″ plywood deck.

   The deck's fastening to the supporting structure must be strong enough to resist wind uplift loads (as defined per NBC requirements).

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:**
   Testing 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:**
   Testing 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:**
   Follow all guide lines or supplementary instructions from the manufacturer regarding adhesive application.

6. **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.

7. **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).

8. **Experimental factor:**
   In accordance with CSA A123.21 standard, the published dynamic uplift resistance (DUR) include a computed experimental factor of 1,5.

9. **Building Wind Load Calculation:**
   An online calculator is available at http://www.exp.com/fr/rooftesting.

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

10. Technical Advisories:

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

11. 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.

12. Change(s) included in review(s) :

2017-01-30	First edition
2018-07-23 (R1)	Addition of equivalent membranes

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Date