Bulletin

Roof Testing Laboratory

Roof System Dynamic Wind Uplift Resistance Results

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MODIFIED BITUMEN SYSTEM, PERMABASE DEK, INSULATION, PERMABASE DEK

(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:	Moisture and fire resistant lightweight concrete board / Mechanically fastened
Insulation (top):	Polyisocyanurate foam insulation board / Loose laid
Insulation (bottom):	Polyisocyanurate foam insulation board / Loose laid
Vapour barrier:	Self-adhesive membrane
Thermal barrier:	Moisture and fire resistant lightweight concrete board / Mechanically fastened
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	-5,8 kPa (-122 psf)	-3,9 kPa (-81 psf)

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Products

CAP SHEET MEMBRANE				
TESTED PRODUCT: Membrane composed of a non-woven polyester reinforcement and SBS modified bitumen.				
System	**Application Method**			
A	Torch applied			
ELIGIBLE PRODUCT(S)				
Soprema	Sopralene Flam 250 GR			

BASE SHEET MEMBRANE			
TESTED PRODUCT: Membrane composed of a non-woven polyester reinforcement and SBS modified bitumen.			
System	**Application Method**	**Row spacing**	**Fasteners spacing**
A	Torch applied	N/A	N/A
ELIGIBLE PRODUCT(S)			
Soprema	Sopralene Flam 180		

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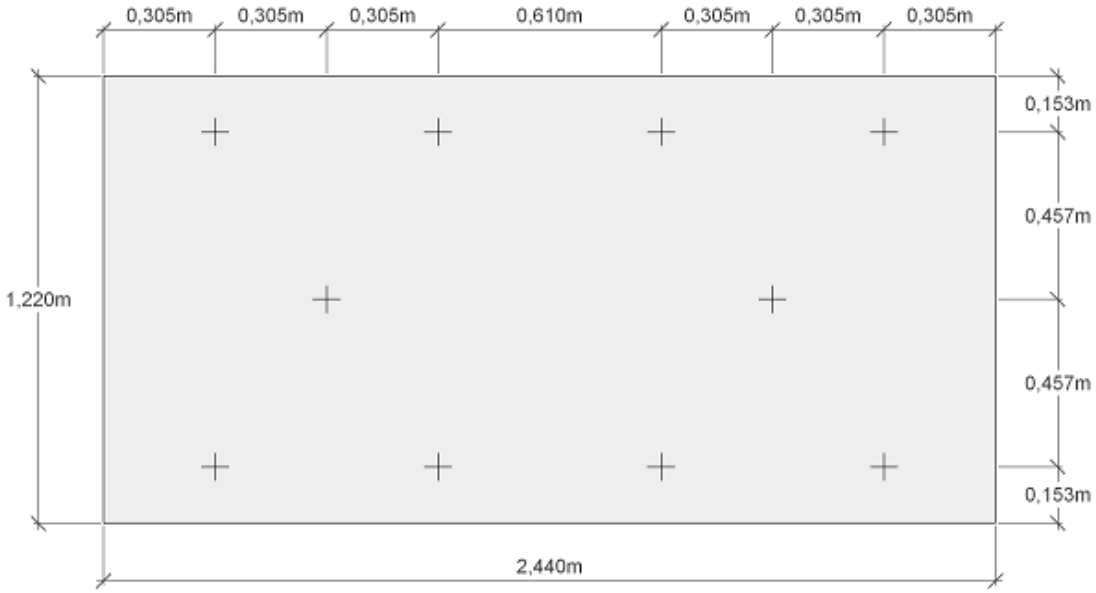
COVER BOARD		
TESTED PRODUCT: Moisture and fire resistant lightweight concrete board composed of cement with polymers and lightweight aggregates wrapped in a mesh.		
System	**Application Method**	**Fastening Rate**
A	Mechanically fastened	10 fasteners / board 1220 x 2438 mm (4' x 8')
ELIGIBLE THICKNESS(ES)		
12,7 mm (½ in)		
FASTENING METHOD		
Screws and plates		
FASTENING PATTERN		

System A



ELIGIBLE PRODUCT(S)				
Unifix	PermaBase Dek			

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INSULATION (Top Row)				
TESTED PRODUCT: Polyisocyanurate foam insulation board laminated on both sides with fiber reinforced organic felt.				
System	**Application Method**		**Fastening Rate**	
A	Loose laid, staggered		N/A	
ELIGIBLE THICKNESS(ES)				
38 to 102 mm (1½ to 4 in)				
ELIGIBLE PRODUCT(S)				
Soprema	Sopra-ISO			

INSULATION (Bottom Row)				
TESTED PRODUCT: Polyisocyanurate foam insulation board laminated on both sides with fiber reinforced organic felt.				
System	**Application Method**		**Fastening Rate**	
A	Loose laid, with offset joints		N/A	
ELIGIBLE THICKNESS(ES)				
38 to 102 mm (1½ to 4 in)				
ELIGIBLE PRODUCT(S)				
Soprema	Sopra-ISO			

VAPOUR BARRIER				
TESTED PRODUCT: Self-adhesive membrane composed of a trilaminated woven polyethylene and SBS modified bitumen.				
System	**Fastening Method**		**Primer**	
A	Self-adhered		Elastocol Stick	
ELIGIBLE PRODUCT(S)				
Soprema	Sopravap'R			

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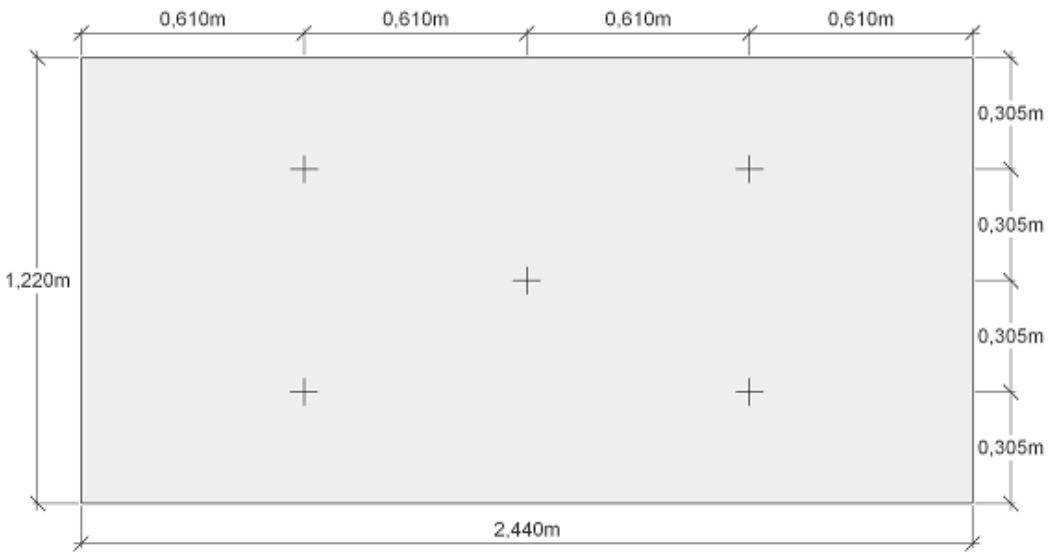
THERMAL BARRIER				
TESTED PRODUCT: Moisture and fire resistant lightweight concrete board composed of cement with polymers and lightweight aggregates wrapped in a mesh.				
System	**Application Method**		**Fastening Rate**	
A	Mechanically fastened		5 fasteners / board 1220 x 2438 mm (4' x 8')	
ELIGIBLE THICKNESS(ES)				
12,7 mm (½ in)				
FASTENING METHOD				
Screws and plates				
FASTENING PATTERN(S)				

System A



ELIGIBLE PRODUCT(S)				
Unifix	PermaBase Dek			

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FASTENERS		
TESTED PRODUCT(S): #14 roofing fasteners		
System	**Screws**	**Plates**
A	Cover board : #14 x 152 mm	Hexagonal metal plates of 73 mm (2⅞ in)
	Thermal barrier : #14 x 51 mm	Hexagonal metal plates of 73 mm (2⅞ in)
FASTENERS MEASURED PULL OUT RESISTANCE		
397 kgf (875 lbf)		
ELIGIBLE PRODUCT(S)		
Dekfast	#14 roofing fasteners	Hexagonal metal plates

ADHESIVE
TESTED PRODUCT: N/A

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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). Tests could be performed on concrete deck or standard 4′ x 8′ x ⅝″ plywood deck to assess eligibility for possible equivalencies.

   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. Version tracking table:

2017-12-18	First edition

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