

## Roof Testing Laboratory



## Roof System Dynamic Wind Uplift Resistance Results

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### SOPRA-ISO MECHANICALLY FASTENED AND SOPRABOARD ADHERED SYSTEM

### (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:	Semi-rigid board composed of a mineral-fortified asphaltic core 1220 x 1520 x 3,2 mm (4' x 5' x 1/8") / Adhered
Insulation (top row):	Polyisocyanurate foam insulation board 1220 x 1220 x 38 mm (4' x 4' x 1 1/2") / Adhered
Insulation (bottom row):	Polyisocyanurate foam insulation board 1220 x 1220 x 51 mm (4' x 4' x 2") / Mechanically fastened
Vapor barrier:	Self-adhering membrane
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	-3,6 kPa (-75 psf)	-2,4 kPa (-50 psf)

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### Products

CAP SHEET MEMBRANE			
<b>TESTED PRODUCT:</b> Membrane is 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			
<b>TESTED PRODUCT:</b> Membrane is 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			
<b>TESTED PRODUCT:</b> Semi-rigid board composed of two asphalt-saturated glass mat reinforcement covering a mineral-fortified asphaltic core			
System	Application Method	Fastening Rate	
A	Adhered with Duotack	Ribbons at 305 mm (12 in.)	
ELIGIBLE THICKNESS(ES)			
Between 3,2 to 6,4 mm (1/8 to 1/4 in)			
FASTENING METHOD			
Duotack adhesive			
FASTENING PATTERN			
<p><b>System A</b></p>			
ELIGIBLE PRODUCT(S)			
Soprema	Sopraboard		



INSULATION (Top Row)			
<b>TESTED PRODUCT :</b> Polyisocyanurate foam insulation board laminated on both sides with fiber reinforced felt			
System	Application Method	Fastening Rate	
A	Adhered with Duotack	Ribbons at 305 mm (12 po)	
ELIGIBLE THICKNESS(ES)			
Between 25 to 102 mm (1 to 4 in)			
FASTENING METHOD			
Duotack adhesive			
FASTENING PATTERN			
<p><b>System A</b></p>			
ELIGIBLE PRODUCT(S)			
Soprema	Sopra-ISO		



INSULATION (Bottom Row)				
TESTED PRODUCT : Polyisocyanurate foam insulation board laminated on both sides with fiber reinforced felt				
System	Application Method		Fastening Rate	
A	Mechanically fastened		4 fasteners / board 1220 x 1220 mm (4' x 4')	
ELIGIBLE THICKNESS(ES)				
Minimum of 51 mm (2 in)				
FASTENING METHOD				
Screws and plates				
FASTENING PATTERN				
<p><b>System A</b></p> <p>The diagram shows a square fastening pattern for System A. The overall dimensions of the square are 1.220m by 1.220m. There are four fasteners arranged in a 2x2 grid. The spacing between adjacent fasteners is 0.305m. The fasteners are located at approximately (0.305, 0.305), (0.915, 0.305), (0.305, 0.915), and (0.915, 0.915) relative to the bottom-left corner of the square.</p>				
ELIGIBLE PRODUCT(S)				
Soprema	Sopra-ISO			



FASTENERS PULL OUT RESISTANCE		
TESTED PRODUCT(S) : #12 roofing fasteners		
System	Screws	Plates
A	#12 x 73,0 mm (2 <sup>7</sup> / <sub>8</sub> in)	Round plate of 76,0 mm (3 in)
FASTENERS MEASURED PULL OUT RESISTANCE		
189 kgf (417 lbf)		
ELIGIBLE PRODUCT(S)		
Dekfast (screws)	#12 x 73,0 mm (2 <sup>7</sup> / <sub>8</sub> in)	
Trufast (plates)	Round metal insulation plates	

ADHESIVE			
TESTED PRODUCT : Low-rise, two-components, polyisocyanurate adhesive			
System	Ribbon's spacing	Primer	
A	305 mm (12 in)	N/A	
ELIGIBLE PRODUCT(S)			
Soprema	Duotack		

VAPOR BARRIER			
TESTED PRODUCT : Self-adhesive membrane composed of a tri-laminated woven polyethylene facer and SBS modified bitumen			
System	Fastening Method	Primer	
A	Self-adhered	N/A	
ELIGIBLE PRODUCT(S)			
Soprema	Sopravap'R		
ELIGIBLE PRODUCT(S) over thermal barrier : N/A			

THERMAL BARRIER	
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). The tests could also be performed on concrete deck or standard 4' x 8' x 5/8" 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.

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### 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) :

2017-03-01	Publication initiale

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Date