

## Roof Testing Laboratory



## Roof System Dynamic Wind Uplift Resistance Results

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### SOPRASMART BOARD 180 ADHERED WITH ADHESIVE OVER SOPRA-ISO MECHANICALLY FASTENED (PARS) PARTIALLY ATTACHED (HYBRIDE) ROOFING SYSTEM

#### Roofing System Summary

Cap sheet membrane:	Modified bitumen membrane / Torch applied
Base sheet membrane:	N/A
Cover board:	Board composed of a SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on an asphaltic board 914 x 2440 x 5,4 mm (3' x 8' x 7/32") / Adhered
Insulation (top row) :	Polyisocyanurate foam insulation board 1220 x 1220 x 38 mm (4' x 4' x 1½") / 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	-4,3 kPa (-90 psf)	-2,9 kPa (-60 psf)

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### Products

CAP SHEET MEMBRANE				
TESTED PRODUCT : 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				
TESTED PRODUCT : N/A				

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COVER BOARD				
TESTED PRODUCT : Board composed of a SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on an asphaltic board				
System	Application Method		Fastening Rate	
<b>A</b>	Adhered with Duotack		Ribbons at 305 mm (12 in)	
ELIGIBLE THICKNESS(ES)				
Between 5,4 to 7,0 mm ( <sup>7</sup> / <sub>32</sub> to <sup>9</sup> / <sub>32</sub> in)				
FASTENING METHOD				
Duotack Adhesive				
FASTENING PATTERN				
<p><b>System A</b></p> <p>The diagram shows a rectangular fastening pattern on a board. The total width is 2,440m and the total height is 0,914m. The fastening strip is positioned 0,076m from the top and bottom edges. It consists of a central 0,305m wide ribbon with 0,152m gaps between the top and bottom edges of the ribbon.</p>				
ELIGIBLE PRODUCT(S)				
<b>Soprema</b>	Soprasmart Board 180			



INSULATION (Top Row)				
TESTED PRODUCT : 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 in)	
ELIGIBLE THICKNESS(ES)				
Between 13 to 102 mm (½ 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 fibre reinforced felt				
System	Application Method			Fastening Rate
A	Mechanically fastened			5 fasteners / board 1220 x 1220 mm (4' x 4')
ELIGIBLE THICKNESS(ES)				
Between 51 to 102 mm (2 to 4 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 are 1,220m by 1,220m. There are five fasteners arranged in a cross pattern: one in the center and four at the intersections of the horizontal and vertical center lines. The spacing between adjacent fasteners is 0,305m. Specifically, there are four 0,305m intervals between the center and each edge, resulting in a total width and height of 1,220m (4 x 0,305m).</p>				
ELIGIBLE PRODUCT(S)				
Soprema	Sopra-ISO			

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FASTENERS PULL OUT RESISTANCE		
TESTED PRODUCT(S) : #12 roofing fasteners		
System	Screws	Plates
A	#12 x 73,0 mm (2 7/8 in)	Round plates of 76,0 mm (3 in)
FASTENERS MEASURED PULL OUT RESISTANCE		
178 kgf (392 lbf)		
ELIGIBLE PRODUCT(S)		
Dekfast (screws)	#12 x 73,0 mm (2 7/8 in)	
Trufast (plates)	Round metal insulation plates	

ADHESIVE		
TESTED PRODUCT : Low-rise, two-component, polyurethane 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 trilaminated woven polyethylene 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	First edition

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Marc 1<sup>st</sup> 2017

Date