

## Roof Testing Laboratory



## Roof System Dynamic Wind Uplift Resistance Results

File Numbers:	SOPI-216809-T7 SOPI-216809-T5 SOPI-216809-T6
Test Dates:	2014-05-21 / 2014-03-07 / 2014-03-14
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Reappraisal Date:	2020-05-25



### SOPRAROCK DD PLUS MOD-BIT 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:	Optional
Insulation: (Top)	Mineral fiber board with bitumen saturated top surface 1220 x 1220 x 51 mm (4' x 4' x 2") / Mechanically fastened
Insulation: (Bottom)	Mineral fiber board 1220 x 1220 x 51 mm (4' x 4' x 2") / Loose laid
Vapor barrier:	Modified bitumen membrane / Torch applied
Thermal barrier:	Moisture and fire resistant gypsum 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	-3,2 kPa (-67 psf)	-2,2 kPa (-45 psf)
B	-5,4 kPa (-112 psf)	-3,6 kPa (-75 psf)
C	-7,5 kPa (-157 psf)	-5,0 kPa (-105 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, B, C	Torch applied			
ELIGIBLE PRODUCT(S)				
Soprema	Sopralene Flam 250 GR	Sopralene Flam 180 GR	Soprastar Flam HD GR	Sopralene Flam 180 FR GR
	Sopralene Flam 250 FR GR	Soprastar Flam HD FR GR	Sopralene Mammouth GR	Sopraply Traffic Cap 560
	Sopraply Traffic Cap FR 561			

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, B, C	Torch applied	N/A	N/A
ELIGIBLE PRODUCT(S)			
Soprema	Sopralene Flam 180	Elastophene Flam	Sopraply Base 520
			Sopralene Flam 250

COVER BOARD
TESTED PRODUCT : Optional



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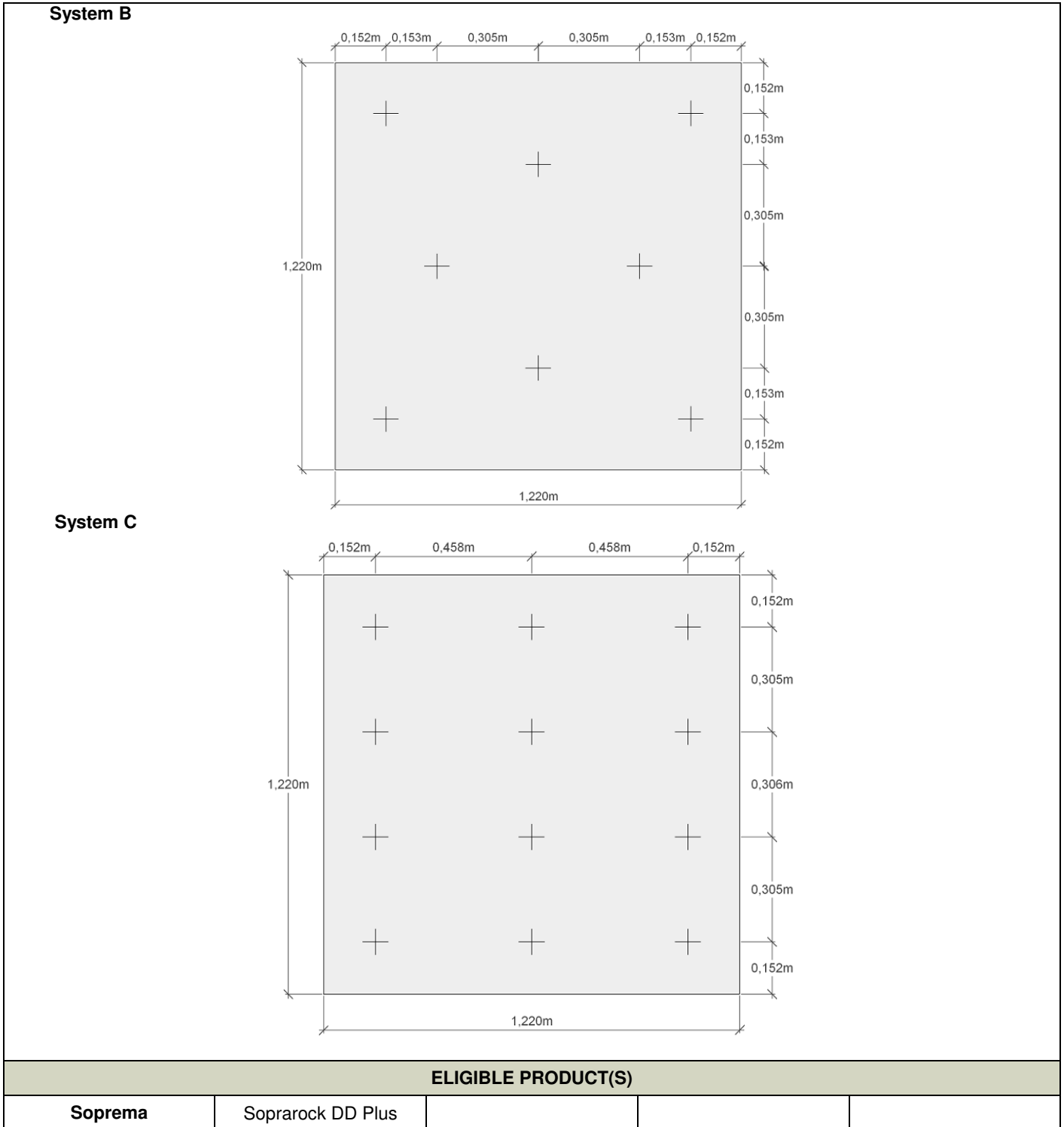
INSULATION (Top Row)		
TESTED PRODUCT : Rigid mineral fiber board (rock wool) with bitumen saturated top surface.		
System	Application Method	Fastening Rate
A	Mechanically fastened	5 fasteners per board 1220 x 1220 mm (4 ft x 4 ft)
B	Mechanically fastened	8 fasteners per board 1220 x 1220 mm (4 ft x 4 ft)
C	Mechanically fastened	12 fasteners per board 1220 x 1220 mm (4 ft x 4 ft)
ELIGIBLE THICKNESS(ES)		
Between 51 mm to 102 mm (2 po to 4 po)		
FASTENING METHOD		
Screws and plates		
FASTENING PATTERN		
<p><b>System A</b></p> <p>The diagram shows a square fastening pattern on a 1,220m x 1,220m board. There are five fasteners: one in the center and four at the corners. The distance from each corner to the center is 0,152m. The distance between the corner fasteners is 0,458m.</p>		

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INSULATION (Bottom Row)				
<b>TESTED PRODUCT :</b> Rigid mineral fibre (rock wool) insulation board with a natural top surface.				
System	Application Method		Fastening Rate	
A, B, C	Loose laid		N/A	
ELIGIBLE THICKNESS(ES)				
Between 51 mm to 102 mm (2 in to 4 in)				
ELIGIBLE PRODUCT(S)				
Soprema	Soprarock DD	Soprarock DD Plus	Sopra-ISO	Sopra-ISO Plus
Atlas Roofing Corp.	ACFoam II	ACFoam III	ACFoam IV	
Johns Manville	ENRGY 3	ENRGY 3 CGF		
Hunter Panels	H-Shield	H-Shield CG		

FASTENERS PULL OUT RESISTANCE		
<b>TESTED PRODUCT(S) :</b> Hardened carbon #12 or 14 fasteners with anticorrosion coating.		
System	Screws	Plates
A	#14 x 152 mm (6 in)	Metal Hexagonal of 73 mm (2 <sup>7</sup> / <sub>8</sub> in)
	#12 x 41 mm (1 <sup>5</sup> / <sub>8</sub> in)	Metal Hexagonal of 73 mm (2 <sup>7</sup> / <sub>8</sub> in)
B and C	#14 x 152 mm (6 in)	Metal Rounds of 76 mm (3 in)
	#12 x 41 mm (1 <sup>5</sup> / <sub>8</sub> in)	Metal Square of 76 mm (3 in)
FASTENERS MEASURED PULL OUT RESISTANCE		
#14 : 201 kgf (442 lbf) and #12 : 178 kgf (393 lbf)		
ELIGIBLE PRODUCT(S)		
Dekfast	#14 x 152 mm (6 in)	Metal Rounds of 76 mm (3 in)
	#14 x 152 mm (6 in)	Metal Hexagonal of 73 mm (2 <sup>7</sup> / <sub>8</sub> in)
	#12 x 41 mm (1 <sup>5</sup> / <sub>8</sub> in)	Metal Square of 76 mm (3 in)

ADHESIVE
<b>TESTED PRODUCT :</b> N/A

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VAPOR BARRIER			
<b>TESTED PRODUCT</b> : Membrane composed of a non-woven polyester reinforcement and SBS modified bitumen			
System	Fastening Method		Primer
A	Torch applied		N/A
B and C	Torch applied		Elastocol 500
ELIGIBLE PRODUCT(S)			
Soprema	Sopralene 180 SP 3.5	Elastophene SP 2.2	
<b>Attachment method</b> : Torch applied (All substrates must be primed with Elastocol 500.)			
Soprema	Sopravap'R	Sopralene Stick	
<b>Attachment method</b> : Self-adhered (Steel deck excepted, all substrates must be primed with Elastocol Stick or Elastocol Stick Zero.)			
Soprema	Xpress vap'R	Soprastop	
<b>Attachment method</b> : Loose laid or adhered or mechanically fastened			

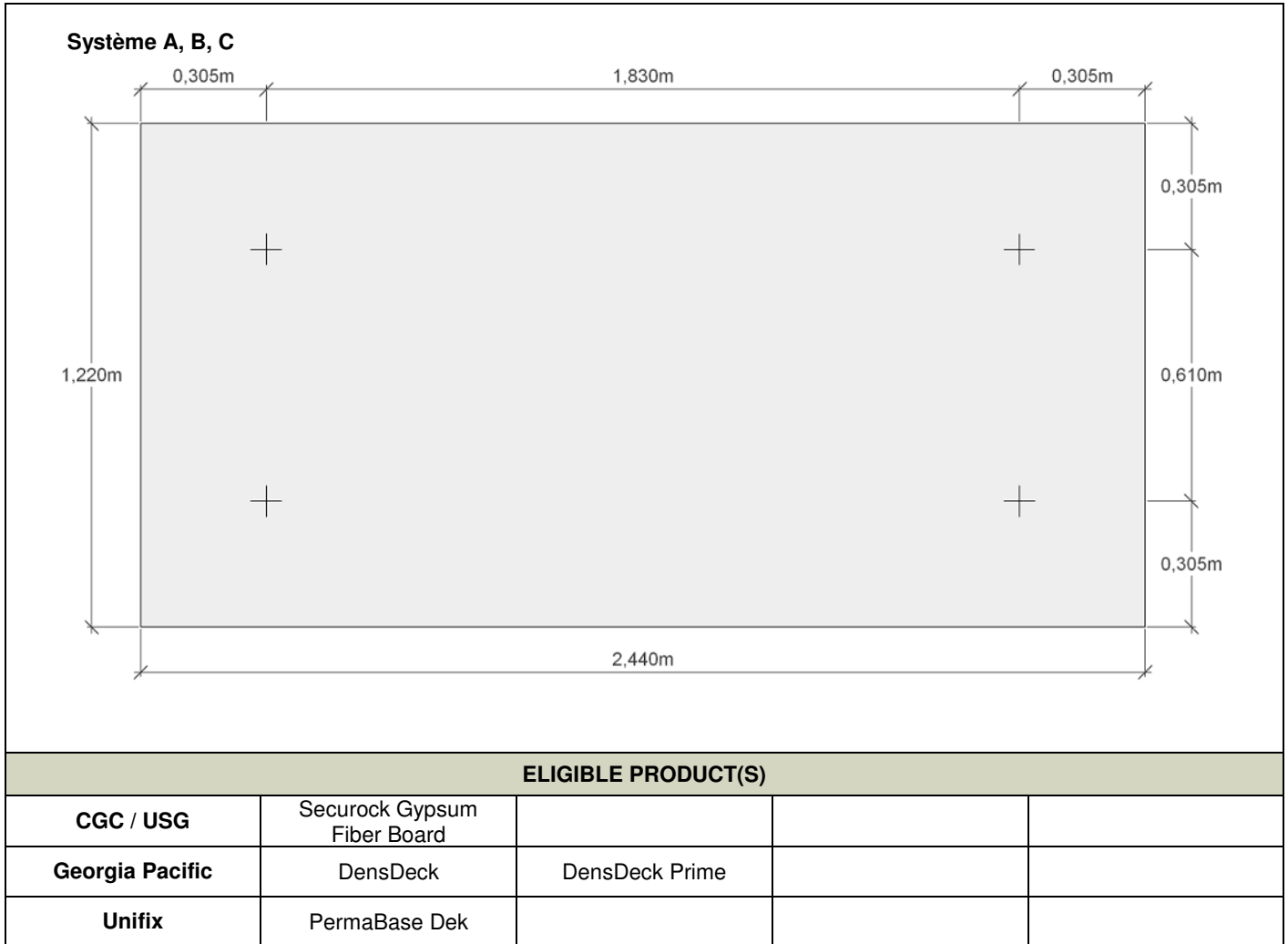
THERMAL BARRIER		
<b>TESTED PRODUCT</b> : Fiber-reinforced, moisture and fire resistant gypsum board (A) and Moisture and fire resistant gypsum board, covered with non-combustible fiberglass felt and non-asphaltic coating (B, C)		
System	Application Method	Fastening Rate
A, B, C	Mechanically fastened	4 fasteners per board 1220 x 2440 mm (4 ft x 8 ft)
ELIGIBLE THICKNESS(ES)		
Between 12,7 mm to 15,9 mm (1/2 in to 5/8 in)		
FASTENING METHOD		
Screws and plates		
FASTENING PATTERN(S)		

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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 5/8" 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.



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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. Version tracking table:

2012-06-14	First edition
2015-04-28 (R1)	N/D
2017-05-25 (R2)	New presentation layout

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Date