Bulletin

Roof Testing Laboratory

Roof System Dynamic Wind Uplift Resistance Results

File Number:	SOPI-231265-02
Test Date:	2016-03-17
Publication Date:	2017-05-29
Reappraisal Date:	2020-05-29

DENSDECK PRIME MECHANICALLY FASTENED AND SOPRASMART BOARD 180 ADHERED (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 2438 x 5,4 mm (3′ x 8′ x 7/32") / Adhered
Insulation:	Polyisocyanurate foam insulation board 1220 x 1220 x 38 mm (4′ x 4′ x 1½") / Adhered
Vapor barrier:	Modified bitumen membrane / Torch applied
Thermal barrier:	Moisture and fire resistant gypsum board 1220 x 2438 x 12,7 mm (4′ x 8′ x ½") / 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	-5,4 kPa (-112 psf)	-3,6 kPa (-75 psf)

Roof System Dynamic Wind Uplift Resistance Results

SOPI-231265-02

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

Roof System Dynamic Wind Uplift Resistance Results

SOPI-231265-02

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**
A	Adhered	Ribbons at 305 mm (12 in) o.c.

ELIGIBLE THICKNESS(ES)

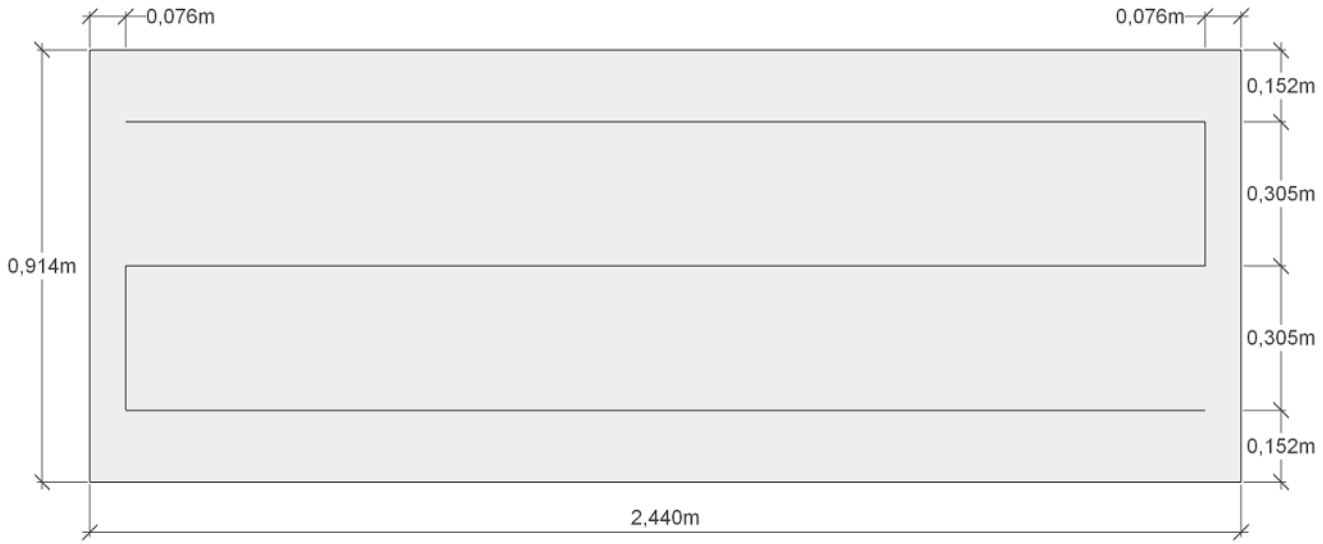
5,4 mm ($^{7}/_{32}$ in) or 7,1 mm ($^{9}/_{32}$ in)

FASTENING METHOD

Duotack adhesive

FASTENING PATTERN

System A



ELIGIBLE PRODUCT(S)

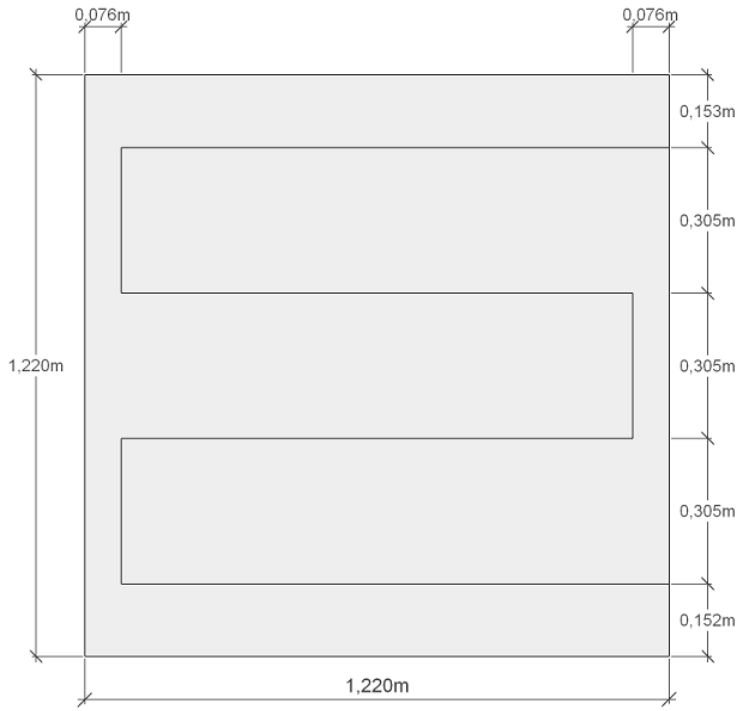
Soprema	Soprasmart Board 180			

Roof System Dynamic Wind Uplift Resistance Results

SOPI-231265-02

INSULATION (Top Row)		
TESTED PRODUCT : Polyisocyanurate foam insulation board laminated on both sides with fibre reinforced felt		
System	**Application Method**	**Fastening Rate**
A	Adhered	Ribbons at 305 mm (12 in) o.c.
ELIGIBLE THICKNESS(ES)		
Between 38 to 102 mm (1½ to 4 in)		
FASTENING METHOD		
Duotack adhesive		
FASTENING PATTERN		

System A



ELIGIBLE PRODUCT(S)				
Soprema	Sopra-ISO			

Roof System Dynamic Wind Uplift Resistance Results

SOPI-231265-02

INSULATION (Bottom Row)
TESTED PRODUCT : N/A

ADHESIVE				
TESTED PRODUCT : Low-rise, two-component, polyurethane adhesive				
System	**Ribbon's spacing**		**Primer**	
A	305 mm (12 in) o.c.		N/A	
ELIGIBLE PRODUCT(S)				
Soprema	Duotack			

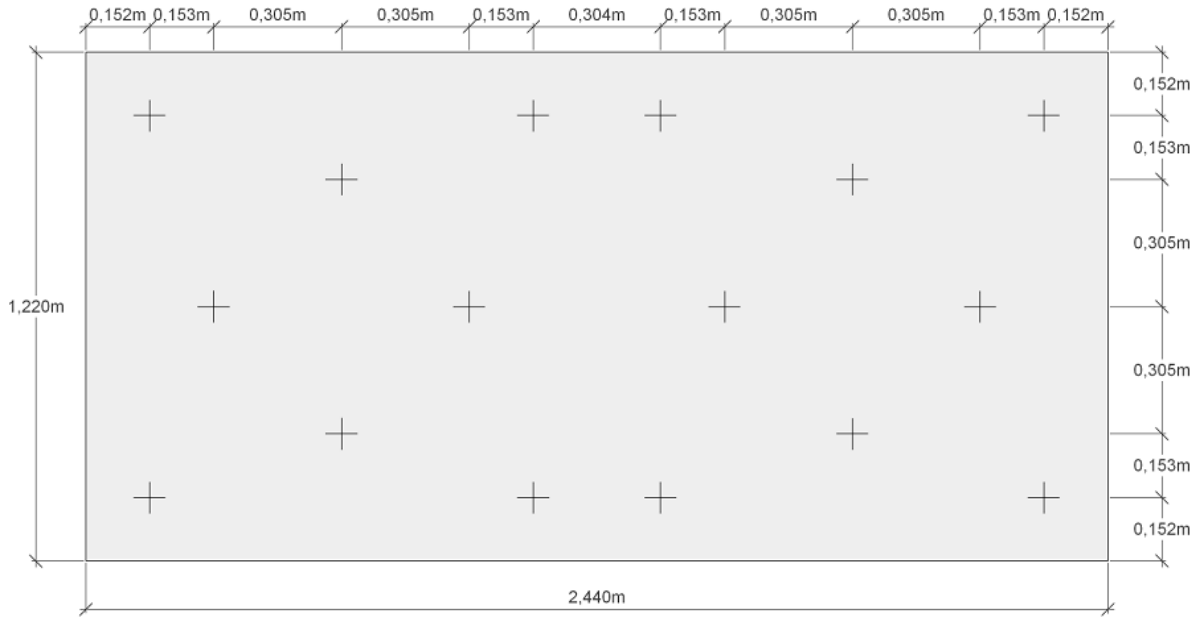
VAPOR BARRIER				
TESTED PRODUCT : Membrane composed of a glass mat reinforcement and SBS modified bitumen				
System	**Fastening Method**		**Primer**	
A	Torch applied		Elastocol 500	
ELIGIBLE PRODUCT(S)				
A	Elastophene SP 2.2			
ELIGIBLE PRODUCT(S) over thermal barrier : N/A				

Roof System Dynamic Wind Uplift Resistance Results

SOPI-231265-02

THERMAL BARRIER		
TESTED PRODUCT : Moisture and fire resistant gypsum board, covered with non-combustible fiberglass felt and non-asphaltic coating		
System	**Application Method**	**Fastening Rate**
A	Mechanically fastened	16 fasteners / board 1220 x 2438 mm (4' x 8')
ALLOWABLE THICKNESS(ES)		
Between 12,7 to 15,9 mm (½ to ⅝ in)		
FASTENING METHOD		
Screws and plates		
FASTENING PATTERN(S)		

System A



ELIGIBLE PRODUCT(S)				
Georgia-Pacific	DensDeck Prime			

Roof System Dynamic Wind Uplift Resistance Results

SOPI-231265-02

FASTENERS PULL OUT RESISTANCE		
TESTED PRODUCT(S) : Roofing fasteners #12		
System	**Screws**	**Plates**
A	#12 x 41,3 mm (1⅝ in)	Round plates of 76 mm (3 in)
FASTENERS MEASURED PULL OUT RESISTANCE		
189 kgf (417 lbf)		
ELIGIBLE PRODUCT(S)		
Dekfast (screws)	#12 x 41,3 mm (1⅝ in)	
Dekfast (plates)	Round metal insulation plates	

General Notes

1. **Decking:**

   The tests performed by **exp** services inc. («**exp**») 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).

   Equivalency; tests have demonstrated that the heat welded vapour barrier in the system herein described is suitable for application on concrete deck properly primed with Elastocol 500.

   Tests could be conducted on 4 'x 8' x ⅝ "standard 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:

2017-03-06	First edition
2017-05-29	Concrete deck equivalency added

Prepared by:

exp Services Inc.

Serge Rochon, P.Eng.
Provincial Director – Roofing & Building Envelope
OIQ Nº 114865

May 29th 2017
Date