# Bulletin

## Roof Testing Laboratory

**Roof System Dynamic Wind Uplift Resistance Results**

| | |
|---|---|
| File number: | PTFS-240597-04-5100 |
| Test date: | 2017-07-04 |
| Publication date: | 2017-09-22 |
| Last revision date: | 2020-03-10 |
| Reappraisal date: | 2023-03-10 |

## VANGUARD LEXBASE G 180 ADHERED WITH LEXPHALT LG

## (AARS) ADHESIVE APPLIED ROOFING SYSTEM

### Roofing System Summary

| | |
|---|---|
| Cap sheet membrane: | Modified bitumen membrane / Torch applied |
| Base sheet membrane: | Included to the cover board |
| Cover board: | Gypsum board with modified bitumen membrane 914 x 2440 x 8,6 mm (3' x 8' x 0,34'') / Adhered with Lexphalt LG |
| Insulation: | Polystyrene insulation board 1220 x 1220 x 76 mm (4' x 4' x 3'') / Adhered with Lexphalt LG |
| Vapour barrier: | Self-adhesive membrane |
| Thermal barrier: | Moisture and fire resistant gypsum board 1220 x 2440 x 13 mm (4' x 8' x ½'') / Adhered with Lexphalt LG |
| 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** | -5,7 kPa (-120 psf) | -3,8 kPa (-80 psf) |

# Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

## Products

| CAP SHEET MEMBRANE | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT:** membrane composed of heavy-duty non-woven polyester mat, reinforced with glass fiber strands and SBS modified bitumen. | | | | |
| **System** | **Application Method** | | **Row spacing** | **Fasteners spacing** |
| **A** | Torch applied | | N/A | N/A |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **Lexcor** | Vanguard 250 TC | Vanguard TP-250-Cap | Vanguard 180 SF | |
| **IKO** | Torchflex TP-250-Cap | TP-250-Cap 5 mm | Torchflex TPQ-250-Cap | Torchflex TP-180-Cap |
| | Torchflex 250-Cap | Armourcool | Torchflex Prevent TP-180 | Torchflex Prevent TP-250 |
| | Torchflex Prevent Premium TP-250 | Torchflex TP-180-SF | | |
| **Bakor** | Modified Plus NP 180 | Modified Plus NP 250 | | |

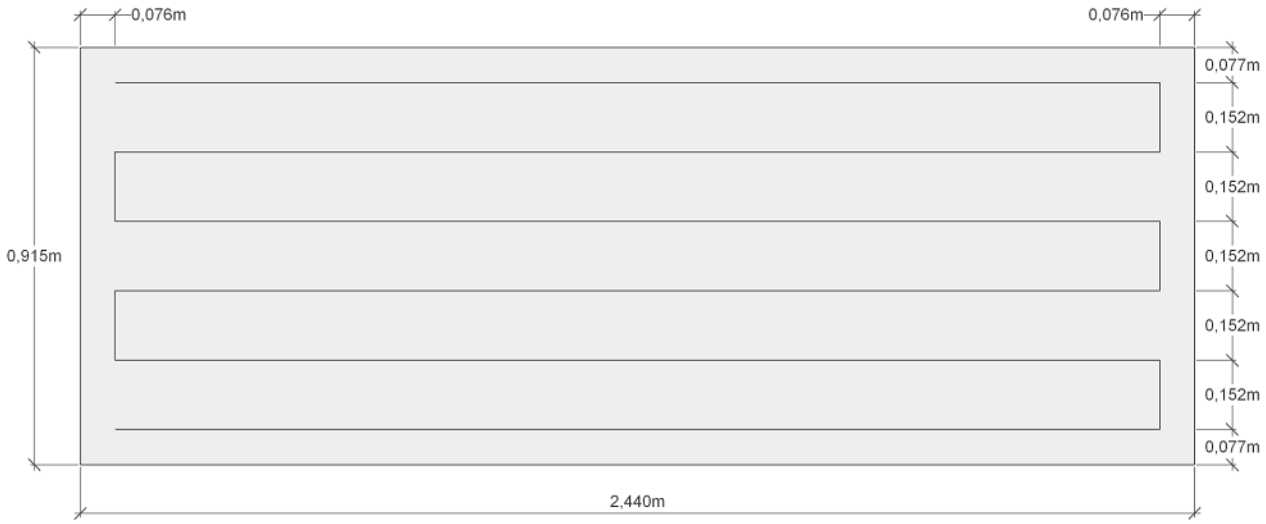
| BASE SHEET MEMBRANE |
|---|
| **TESTED PRODUCT:** Included to the cover board |

# Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

| COVER BOARD | | |
|---|---|---|
| **TESTED PRODUCT:** Composite board composed of a membrane made of a high strength non-woven polyester mat and SBS modified bitumen, factory laminated to a silicone treated core gypsum board with coated fiberglass facers. | | |
| **System** | **Application Method** | **Fastening Rate** |
| **A** | Adhered with Lexphalt LG | Ribbons at 152 mm (6 in) o.c. |
| **ELIGIBLE THICKNESS(ES)** | | |
| 8,6 mm (0,34 in) | | |
| **FASTENING METHOD** | | |
| Lexphalt LG adhesive | | |
| **FASTENING PATTERN** | | |

**System A**



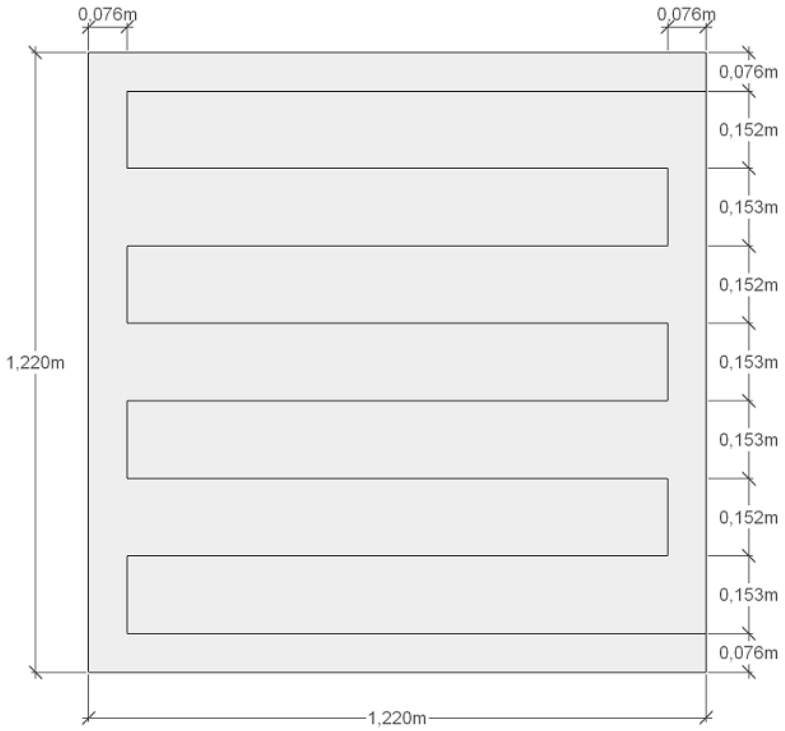

| ELIGIBLE PRODUCT(S) | | | | |
|---|---|---|---|---|
| **Lexcor** | Vanguard Lexbase G 180 | | | |

## Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

| INSULATION (Top Row) | | |
|---|---|---|
| **TESTED PRODUCT:** Expanded polystyrene insulation board. | | |
| **System** | **Application Method** | **Fastening Rate** |
| **A** | Adhered with Lexphalt LG | Ribbons at 152 mm (6 in) o.c. |
| **ELIGIBLE THICKNESS(ES)** | | |
| 76 to 203 mm (3 to 8 in) | | |
| **FASTENING METHOD** | | |
| Lexphalt LG adhesive | | |
| **FASTENING PATTERN** | | |

**System A**



## Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

| ELIGIBLE PRODUCT(S) | | | | |
|---|---|---|---|---|
| **Fransyl** | Izolon HR | Izolon THR | Izolon HD | Izolon THD |
| **Lexcor** | Isolex | Isolex II | | |
| **Atlas Roofing Corp.** | ACFoam II | ACFoam III | ACFoam IV | |
| **Johns Manville** | ENRGY 3 | ENRGY 3 CGF | | |
| **IKO** | IKOTherm | IKOTherm III | | |

| INSULATION (Bottom Row) |
|---|
| **TESTED PRODUCT:** N/A |

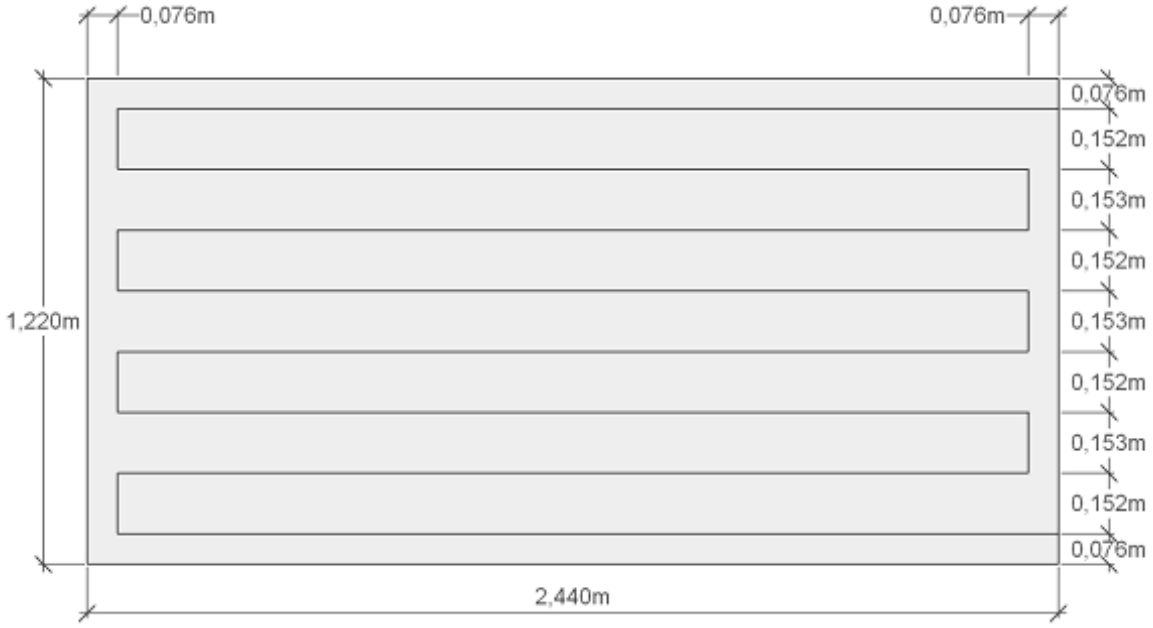
| VAPOUR BARRIER | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT:** Self-adhesive membrane composed of a non-asphaltic adhesive backing and a reinforced surface of woven polypropylene laminated with a non-woven polyester. | | | | |
| **System** | **Fastening Method** | | **Primer** | |
| **A** | Self-adhered | | Ultrastick | |
| **ELIGIBLE PRODUCT(S) : VAPOUR BARRIER** | | | | |
| **Lexcor** (adhesion) | Permate Stick | | | |
| **Lexcor** (fusion) | Vanguard 95 SF | Vanguard 180 SF | | |
| **ELIGIBLE PRODUCT(S) : PRIMER** | | | | |
| **Lexcor** (adhesion) | Ultrastick | Multigrip | | |
| **Lexcor** (fusion) | Lexprime TG | | | |

# Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

| 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** | Adhered with Lexphalt LG | Ribbons at 152 mm (6 in) o.c. |
| **ELIGIBLE THICKNESS(ES)** | | |
| 13 mm (½ in) | | |
| **FASTENING METHOD** | | |
| Lexphalt LG adhesive | | |
| **FASTENING PATTERN(S)** | | |

**System A**

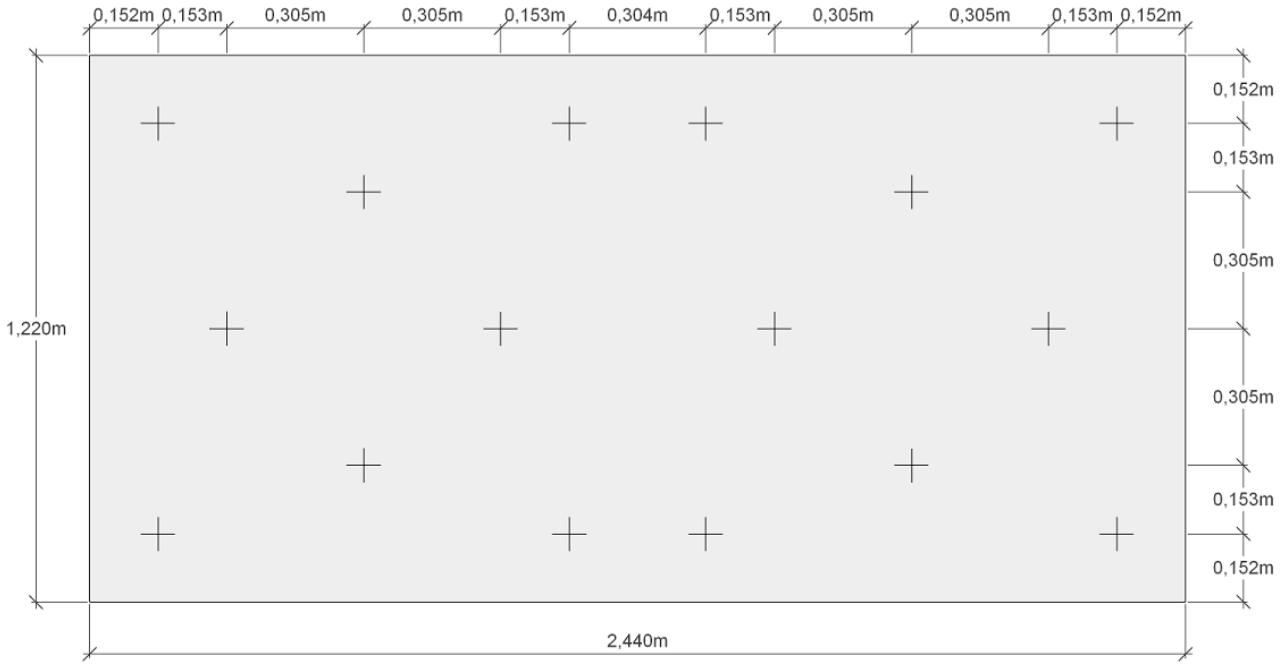


## Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

| ELIGIBLE PRODUCT(S) | | | | |
|---|---|---|---|---|
| **Georgia-Pacific** | DensDeck Prime | | | |
| **ELIGIBLE PRODUCT(S) → with 16 #12 screws and 3 in metal plates, per board of 4' x 8'** | | | | |
| **Finex** | Finex (½ in min.) | | | |
| **Georgia-Pacific** | DensDeck (½ in min.) | | | |
| **USG** | Securock (½ in min.) | | | |
| **Unifix** | PermaBase Dek (½ in min.) | | | |

**FASTENING METHOD ACCEPTED AS EQUIVALENT**



## Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

| FASTENERS | | | |
|---|---|---|---|
| **PRODUCTS ACCEPTED AS EQUIVALENT** | | | |
| **Fastener** | Lexgrip DP#12 | | |
| **Plate** | Lexgrip round insulation plate 3 in | | |

| ADHESIVE | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT:** Single component low-rise moisture cured liquid polyurethane adhesive. | | | | |
| **System** | **Ribbon's spacing** | | **Primer** | |
| **A** | 152 mm (6 in) o.c. | | N/A | |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **Lexcor** | Lexphalt LG | Insultac II | Adphalt | |

# Roof System Dynamic Wind Uplift Resistance Results

PTFS-2405970-04-5100

## 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).

2. **Equivalencies:**

   EXP carried tests over exterior type Douglas Fir Plywood deck, of 16 mm (⅝ in.) minimum thickness, meeting CSA 0121, CSA 0151, CSA 0153 standards, EASY T&G and DFP grade, yielding a load limit of L/180; 6 kPa (125 psf). Those tests demonstrated that Permate Stick self-adhered membrane, used as a vapour barrier, is suitable over a wood deck previously prepared with Ultrastick or Multigrip primer from Lexcor.

   EXP carried tests over cured concrete slab. Those tests demonstrated that a Vanguard 95 SF membrane, used as a vapour barrier, is suitable over concrete deck previously prepared with Lexprime TG primer from Lexcor.

   The deck's fastening to the supporting structure must be strong enough to resist wind uplift loads (as defined per NBC requirements).

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 https://www.nrc-cnrc.gc.ca.

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.

The information in this roofing system report (the "Report") are based on the tests run by EXP of certain combination of materials in a specific and controlled condition to determine the resistance of different roofing systems to wind uplift forces (the "Test"). The results of the Test are subject to certain prerequisite conditions and assumptions made during the Test. In this regard, the Report is for the exclusive use of EXP client for whom the Report was prepared. The information contained in the Report must not be reproduced, used or relied upon in whole or in part without the written consent of EXP. Any third-party user assumes sole responsibility for the use it makes of the information in the Report including but not limited to any decision to purchase roofing material in reliance of the information found in the Report or on the Site. **Exp disclaims all warranties as to the accuracy, completeness or adequacy of the information in the Report or on the Site and accepts no responsibility for damages suffered by any third party arising out of decisions made or actions based on the Report.**

**12. Version tracking table:**

| | |
|---|---|
| 2017-09-22 | First edition |
| 2018-05-03 (R1) | Addition of equivalent fastening method |
| 2019-03-20 (R2) | Addition of eligible products, addition of equivalent decks |
| 2019-06-05 (R3) | Addition of eligible products |
| 2020-03-10 (R4) | Addition of eligible vapour barrier membranes |

Prepared by:

EXP Services inc.

Serge Rochon, P. Eng.
O.I.Q. Nº 114865
Provincial Manager – Building science and CSA laboratory

March 10th, 2020
Date