

# Bulletin

## Roof Testing Laboratory (ISO 17025)

UL Third Party Test Data Program participant



## Roof System Dynamic Wind Uplift Resistance Results

|                   |              |
|-------------------|--------------|
| File number:      | DRS-22027436 |
| Test date:        | 2022-11-30   |
| Reappraisal date: | 2026-02-14   |



### LEXCAN TPO 60 MIL INDUCTION FASTENED MEMBRANE, 8 FASTENERS PER 4'x8' BOARD

### (MARS) MECHANICALLY ATTACHED ROOFING SYSTEM

#### Tested Roofing System Summary

|                                 |  |
|---------------------------------|--|
| Cap sheet membrane:             | Single ply TPO membrane / Fused by induction to insulation plates          |
| Base sheet membrane:            | n/a  |
| Cover board:                    | Optional   |
| Insulation (top):               | Polyisocyanurate insulation board 4 x 8 ft x 1½ in / Mechanically fastened |
| Additional insulation (bottom): | Polystyrene insulation board 4 x 8 ft x 1½ in / Loose laid                 |
| Vapour barrier:                 | Plastic sheeting / Loose laid  |
| Thermal barrier:                | Optional   |
| Decking:                        | Steel deck   |

#### Dynamic Uplift Resistance (DUR) as per CSA A123.21

| System Designation | Measured testing value According to CSA A123.21:20 | Result reduced by a factor of 1,5 According to CSA A123.21:14 |
|--------------------|--|---|
| A                  | -3,4 kPa (-70 psf)                                 | -2,3 kPa (-47 psf)  |

According to the scope of accreditation published on the SCC website  
Accredited Laboratory No. 797



# Roof Testing Laboratory (ISO 17025)



## Roof System Dynamic Wind Uplift Resistance Results

DRS-22027436

### Products

| CAP SHEET MEMBRANE   |  |  |  |   |
|--|--|--|--|---|
| TESTED PRODUCT: Two-ply membrane composed of thermoplastic polyolefin and reinforced with polyester. |  |  |  |   |
| System   | Application Method   |  |  |   |
| A  | Underside of membrane fused by induction to insulation plates. Overlaps hot air fused over 1,5 in. |  |  |   |
| ELIGIBLE PRODUCT(S)  |  |  |  |   |
| LEXCAN   | TPO Lexcan (60 mil)  | Hi-Tuff TPO XTRA membrane<br>2.0 mm (80 mil) | Hi-Tuff TPO HS membrane<br>1.5 mm (60 mil) | Hi-Tuff TPO XTRA HS membrane<br>1.8 mm (72 mil) |
|  | Hi-Tuff TPO XTRA HS membrane<br>1.8 mm (80 mil)  |  |  |   |

| BASE SHEET MEMBRANE |
|---------------------|
| TESTED PRODUCT: n/a |

| COVER BOARD               |                             |                |                      |  |
|---------------------------|-----------------------------|----------------|----------------------|--|
| TESTED PRODUCT: Optional. |                             |                |                      |  |
| ELIGIBLE PRODUCT(S)       |                             |                |                      |  |
| Georgia-Pacific           | DensDeck                    | DensDeck Prime |                      |  |
| USG                       | Securock Gypsum Board       |                |                      |  |
| National Gypsum           | DEXcell                     | DEXcell FA     | DEXcell Cement Board |  |
| LEXSUCO                   | Lexboard ½ po               | Lexboard ¼ po  |                      |  |
| Generic                   | Oriented Strand Board (OSB) | Plywood        | Gypsum Board         |  |

# Roof Testing Laboratory (ISO 17025)



## Roof System Dynamic Wind Uplift Resistance Results

DRS-22027436

| INSULATION (Top Row)  |                       |             |                                |  |
|---|-----------------------|-------------|--------------------------------|--|
| TESTED PRODUCT: Closed cell polyisocyanurate foam insulation board laminated with coated and inorganic fiberglass sheets.   |                       |             |                                |  |
| System  | Application Method    |             | Fastening Rate                 |  |
| A   | Mechanically fastened |             | 8 fasteners per 4 x 8 ft board |  |
| ELIGIBLE THICKNESS(ES)  |                       |             |                                |  |
| 1½ in minimum   |                       |             |                                |  |
| FASTENING METHOD  |                       |             |                                |  |
| Screws and plates   |                       |             |                                |  |
| FASTENING PATTERN   |                       |             |                                |  |
| <p>The diagram shows a rectangular fastening pattern on a 96" x 48" board. There are 8 fasteners arranged in two rows of four. The horizontal spacing between fasteners is 24 inches, with 12 inches from the left and right edges. The vertical spacing between the two rows is 24 inches, with 12 inches from the top and bottom edges.</p> |                       |             |                                |  |
| ELIGIBLE PRODUCT(S)   |                       |             |                                |  |
| LEXCOR  | Isolex                | Isolex II   |                                |  |
| IKO   | IKOTherm              | IKOTherm II |                                |  |
| Atlas Roofing Corp.   | ACFoam II             | ACFoam III  |                                |  |
| Johns Manville  | ENRGY 3               | ENRGY 3 CGF |                                |  |

## Roof Testing Laboratory (ISO 17025)



## Roof System Dynamic Wind Uplift Resistance Results

DRS-22027436

| ADDITIONAL INSULATION (additional layers)   |                    |             |                |            |
|---|--------------------|-------------|----------------|------------|
| TESTED PRODUCT: Closed cell polyisocyanurate foam insulation board laminated with coated and inorganic fiberglass sheets. |                    |             |                |            |
| System  | Application Method |             | Fastening Rate |            |
| A   | Loose laid         |             | n/a            |            |
| ELIGIBLE THICKNESS(ES)  |                    |             |                |            |
| 1½ in minimum   |                    |             |                |            |
| ELIGIBLE PRODUCT(S)   |                    |             |                |            |
| FRANSYL   | Izolon HR          | Izolon THR  | Izolon HD      | Izolon THD |
| LEXCOR  | Isolex             | Isolex II   |                |            |
| IKO   | IKOTherm           | IKOTherm II |                |            |
| Atlas Roofing Corp.   | ACFoam II          | ACFoam III  |                |            |
| Johns Manville  | ENRGY 3            | ENRGY 3 CGF |                |            |

| VAPOUR BARRIER                                 |   |                           |               |         |
|--|---|---------------------------|---------------|---------|
| TESTED PRODUCT: Polyethylene plastic sheeting. |   |                           |               |         |
| System   | Fastening Method                            |                           | Primer        |         |
| A  | Loose laid                                  |                           | n/a           |         |
| ELIGIBLE PRODUCT(S)                            |   |                           |               |         |
| LEXCOR   | Polyethylene PE-6<br>(6 mil)                | Lexshield                 | Permate Stick | Permate |
| Generic  | Polyethylene<br>membrane<br>(6 mil minimum) | Self-adhesive<br>membrane |               |         |

# Roof Testing Laboratory (ISO 17025)



## Roof System Dynamic Wind Uplift Resistance Results

DRS-22027436

| THERMAL BARRIER          |                       |                |                      |  |
|--------------------------|-----------------------|----------------|----------------------|--|
| TESTED PRODUCT: Optional |                       |                |                      |  |
| ELIGIBLE PRODUCT(S)      |                       |                |                      |  |
| Georgia-Pacific          | DensDeck              | DensDeck Prime |                      |  |
| USG                      | Securock Gypsum Board |                |                      |  |
| National Gypsum          | DEXcell               | DEXcell FA     | DEXcell Cement Board |  |

| FASTENERS (see general note #3)           |                |                |                     |                             |
|---|----------------|----------------|---------------------|-----------------------------|
| TESTED PRODUCT(S): #15 roofing fasteners. |                |                |                     |                             |
| System                                    | Screw          |                | Plate               |                             |
| A   | Lexgrip #15 DP |                | JM TPO Rhino Plates |                             |
| FASTENERS MEASURED PULL OUT RESISTANCE    |                |                |                     |                             |
| 573 lbf (measured)                        |                |                |                     |                             |
| ELIGIBLE PRODUCT(S)                       |                |                |                     |                             |
|   | Screw          |                | Plates              |                             |
|   | Manufacturer   | Identification | Manufacturer        | Identification              |
| Membrane                                  | n/a            | n/a            | n/a                 | n/a                         |
| Insulation                                | LEXCOR         | Lexgrip #15 DP | Johns Manville      | JM TPO Rhino Plates         |
|   |                |                | SRD                 | SRD TPO Induction plates    |
|   |                |                | LEXCOR              | Lexgrip TPO induction plate |
|   |                |                | OMG*                | TPO induction plate         |

\*Or any brand of plates manufactured by OMG under private label.

| ADHESIVE            |
|---------------------|
| TESTED PRODUCT: n/a |



| DECKING   |                |                      |                   |                        |
|---|----------------|----------------------|-------------------|------------------------|
| PRODUCT: Steel deck.  |                |                      |                   |                        |
| Grade   | Thickness (in) | Yield strength (ksi) | Span spacing (in) | Fasteners spacing (in) |
| 230   | 0,03           | 33                   | 54                | 6                      |
| Additional testing could be performed on concrete, plywood, planks or other substrates to assess eligibility to possible decking equivalencies. On a building, the attachment of the decking to the supporting structure must be strong enough to resist wind uplift loads (as defined per NBC requirements). |                |                      |                   |                        |

# Roof Testing Laboratory (ISO 17025)



## Roof System Dynamic Wind Uplift Resistance Results

DRS-22027436

### General Notes

**1. Source:**

This publication is based on a test conducted by **EXP Services inc.**

**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:**

Tests 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 (when applicable):**

Tests 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:**

It is EXP opinion that the application of the adhesive beads in an "S" or straight-line arrangement will not affect the results of this publication. The intention at the job site should be that the glue bead spacings be reasonably distributed on the substrate, in order to come as close as possible to the theoretical patterns when the boards are laid in. Comply with all additional manufacturer's requirements regarding the use of adhesives.

**6. Liquid primers and adhesives:**

Please observe the application rates specified by the manufacturers, as well as any additional requirements when applying liquid primers and adhesives.

**7. 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 formally requested to EXP to be studied for approval.

**8. 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).

**9. Building Wind Load Calculation:**

An online calculator is available at <https://nrc.canada.ca/en/research-development/products-services/software-applications/wind-roof-calculators-internet-wind-rci>.

The calculator will compute, the Wind Load of any given building, for field, perimeters and corners, as per 2015 NBC requirement. It will also compute the dimensions of the perimeter and corner areas.

# Roof Testing Laboratory (ISO 17025)



## Roof System Dynamic Wind Uplift Resistance Results

DRS-22027436

### 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:

|            |                |
|------------|----------------|
| 2023-02-14 | First edition. |
|            |                |

Prepared by:

EXP Services Inc.

---

Serge Rochon, P. Eng.  
O.I.Q. N° : 114865  
P.E.O. N° : 100023274  
Provincial Manager – Building science and CSA laboratory

---

2023-02-14

Date