# Bulletin

## Roof Testing Laboratory

**Roof System Dynamic Wind Uplift Resistance Results**

| | |
|---|---|
| File Number: | IKOI-231263-01 |
| Test Date: | 2016-02-10 |
| Publication Date: | 2017-01-30 |
| Revision Date: | 2018-07-23 (R1) |
| Reappraisal Date: | 2021-07-23 |

## PROTECTOBOARD MECHANICALLY FASTENED (5 FASTENERS)

## (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: | Cover board composed of a fortified asphaltic core 1220 x 1524 x 3,2 mm (4' x 5' x ⅛") / Mechanically fastened |
| Insulation: | Rigid polyisocyanurate foam insulation board 1220 x 2438 x 51 mm (4' x 8' x 2") / Loose laid |
| Vapor barrier: | Kraft paper membrane / Spliced with Armourgard adhesive |
| 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** | -2,1 kPa (-43 psf) | -1,4 kPa (-29 psf) |

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## Products

| CAP SHEET MEMBRANE | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT :** Membrane composed of a non-woven polyester reinforcement saturated with SBS modified bitumen | | | | |
| **System** | **Application Method** | | | |
| **A** | Torch applied | | | |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **IKO Industries** | **Application method: torch applied** | | | |
| | Torchflex TP-180-Cap | Torchflex TP-250-Cap | Torchflex TP-250-Cap (5 mm) | PrevENt TP-250-Cap |
| | Armourcool Granular TP | PrevENt ArmourCool Granular TP | Carrara ArmourCool 250 | PrevENt TP-HD-Cap |
| | PrevENt Premium TP-250-Cap | Torchflex TP-HD-Cap | ArmourCool Granular TP-HD | PrevENT ArmourCool HD-Cap |
| | Carrara ArmourCool HD | | | |
| | **Application method: asphalt applied** | | | |
| | Modiflex MP-250-Cap | PrevENt MP-250-Cap | Modiflex MP-180-Cap | Modiflex MP-HD-Cap |
| | PrevENt MP-HD-Cap | Any IKO organic/non-organic BUR | | |

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| BASE SHEET MEMBRANE | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT :** Membrane composed of a non-woven fiberglass reinforcement saturated with SBS modified bitumen | | | | |
| **System** | **Application Method** | | **Row spacing** | **Fasteners spacing** |
| **A** | Torch applied | | N/A | N/A |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **IKO Industries** | **Application method: torch applied** | | | |
| | Torchflex TF-95-FF-Base 2.2 | Torchflex TF-95-SF-Base | Torchflex TP-180-FF-Base | Torchflex TP-180-SF-Base |
| | Torchflex HD-FF-Base | | | |
| | **Application method: asphalt applied** | | | |
| | Modiflex MF-95-Base | Modiflex MF-95-SS-Base | Modiflex MP-180-FS-Base | Modiflex MP-180-SS-Base |
| | Modiflex MP-180-SS-Base (3 mm) | Modiflex MP-HD-FS-Base | Modiflex MP-HD-SS-Base | |

## Roof System Dynamic Wind Uplift Resistance Results

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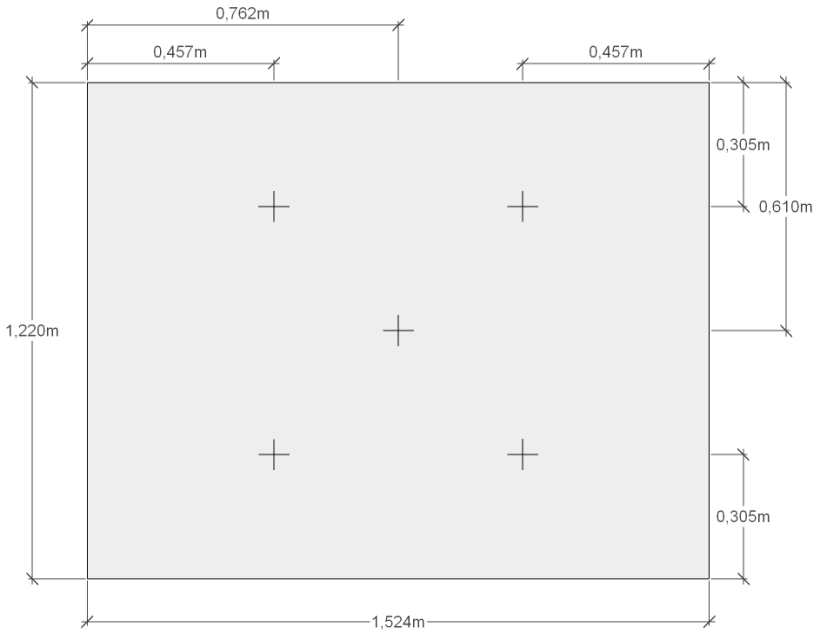
| COVER BOARD | | |
|---|---|---|
| **TESTED PRODUCT :** Cover board composed of a mineral-fortified asphaltic core between two layers of high-strenght reinforcing glass fiber mat | | |
| **System** | **Application Method** | **Fastening Rate** |
| **A** | Mechanically fastened | 5 fasteners per board 1220 x 1524 mm (4' x 5') |
| **ELIGIBLE THICKNESS(ES)** | | |
| 3,2 mm (⅛ in) | | |
| **FASTENING METHOD** | | |
| Trufast screws and plates | | |
| **FASTENING PATTERN** | | |

System A




| ELIGIBLE PRODUCT(S) | | | | |
|---|---|---|---|---|
| **IKO Industries** | Protectoboard | | | |
| | | | | |

## Roof System Dynamic Wind Uplift Resistance Results

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| INSULATION (Top Row) | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT :** Rigid insulation board composed of a closed-cell polyisocyanurate foam, between two fiber-reinforced facer | | | | |
| **System** | **Application Method** | | **Fastening Rate** | |
| **A** | Loose laid | | N/A | |
| **ELIGIBLE THICKNESS(ES)** | | | | |
| Between 25 to 102 mm (1 to 4 in) | | | | |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **IKO Industries** | IKOTherm | | | |
| | | | | |

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

| VAPOR BARRIER | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT :** Membrane composed of two layers of kraft paper bonded together with asphalt | | | | |
| **System** | **Fastening Method** | | **Primer** | |
| **A** | Loose laid with splice adhere with Armourgard adhesive | | N/A | |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **IKO Industries** | Armourgard Vapour Barrier Adhesive | | | |
| **ELIGIBLE PRODUCT(S) over thermal barrier : N/A** | | | | |

| THERMAL BARRIER |
|---|
| **TESTED PRODUCT : N/A** |

## Roof System Dynamic Wind Uplift Resistance Results

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| FASTENERS PULL OUT RESISTANCE | | |
|---|---|---|
| **TESTED PRODUCT(S):** #14 roofing fasteners | | |
| **System** | **Screws** | **Plates** |
| **A** | #14 HD x 76 mm (3 in) | Round of 76 mm (3 in) |
| **FASTENERS MEASURED PULL OUT RESISTANCE** | | |
| 189 kgf (417 lbf) | | |
| **ELIGIBLE PRODUCT(S)** | | |
| **Trufast (screws)** | #14 HD x 76 mm (3 in) | |
| **Trufast (plates)** | Round metal insulation plates | |

| ADHESIVE | | | | |
|---|---|---|---|---|
| **TESTED PRODUCT:** Vapour barrier adhesive composed of fluidized bitumen | | | | |
| **System** | **Ribbon's spacing** | | **Primer** | |
| **A** | For splicing of vapour barrier | | N/A | |
| **ELIGIBLE PRODUCT(S)** | | | | |
| **IKO Industries** | Armourgard Vapour Barrier Adhesive | | | |
| | | | | |

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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 ⅝″ 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.

**10. Technical Advisories:**

This roof system assessment reports must be read in conjunction with any issued technical advisories from **EXP**.

**11. Notice :**

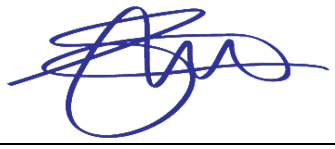
**EXP** reserves the right to withdraw, without prior notice, any Bulletin of Roof System Dynamic Wind Uplift Resistance Results published and/or make any necessary corrections.

**12. Change(s) included in review(s) :**

| | |
|---|---|
| 2017-01-30 | First edition |
| 2018-07-23 (R1) | Addition of equivalent membranes |

Prepared by:

**EXP** Services Inc.



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July 23rd 2018
Date