



NEMO|etc.

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ENGINEER

TEST

CONSULT

**ROOF SYSTEM ASSESSMENT REPORT
DYNAMIC UPLIFT RESISTANCE PER CSA A123.21**

| | | | |
|----------------|--|--------------------|------------|
| CUSTOMER: | Amrize Building Envelope LLC (Duro-Last) | TEST DATE: | 2017-06-30 |
| DOCUMENT NO. | DL-MARS-10 | PUBLICATION DATE: | 2025-07-10 |
| TEST PANEL NO. | DRL-D1E+DRL-D1A+DRL-D1B+D1F | REVISION NO. | 2 |
| SYSTEM TYPE: | D-1 | REEVALUATION DATE: | 2028-07-09 |

MECHANICALLY ATTACHED ROOFING SYSTEM (MARS) SUMMARY

ROOFING SYSTEM SUMMARY:

| | |
|--------------------|--|
| Roof Cover: | PVC single ply, mechanically fixed, in-lap |
| Insulation (top): | Polyisocyanurate foam board, mechanically fixed |
| Insulation (base): | (Optional – depending on thickness of top layer) Polyisocyanurate foam board, loose-laid |
| Vapor Barrier: | Proprietary extruded polyethylene film, loose-laid |
| Thermal Barrier: | (Optional) Gypsum-, cement- or mineral-wool-based board, loose-laid, adhered or mechanically fixed |
| Deck: | Steel |

DYNAMIC UPLIFT RESISTANCE PER CSA A123.21:

| Sustained Test Value | | Design Value CSA A123.21:20 (Test Value x 0.65) | | Design Value CSA A123.21:14 (Test Value ÷ 1.5) | |
|----------------------|-----|---|-----|--|-----|
| | | kPa | psf | kPa | psf |
| -3,8 | -80 | -2,5 | -52 | -2,6 | -53 |

PRODUCTS / APPLICATION:

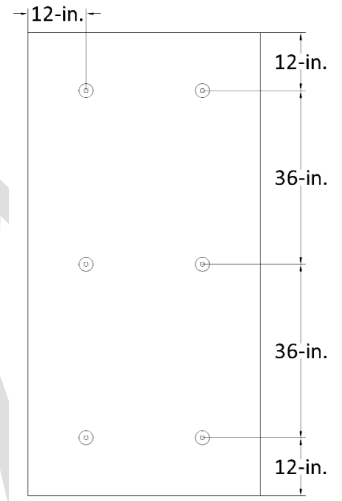
| | | | | | |
|-----------------------|--------------------|--|--|---|-----------------------------------|
| Roof Cover: | Description: | Membrane composed of polyester reinforcement coated with PVC compound | | | |
| | Application: | Mechanically fixed | | | |
| | Eligible Products: | Duro-Tuff (min. nominal 50-mil) | | | |
| Roof Cover Fasteners: | Description: | Corrosion resistant screw-type roofing fasteners with steel stress plates | | | |
| | Fixing Method: | Parts spaced max. 305-mm (12-inch) o.c. within the min. 152-mm (6-inch) wide side laps, spaced max. 1.4-m (54-inch) o.c. Side laps sealed with 1.5-inch heat weld. | | | |
| | Fixing Density: | 1 part per 0.42 m ² (4.5 ft ²) | | | |
| | Eligible Products: | Fasteners | | Plates | |
| | | Duro-Last #15 Extra Heavy Duty Fastener | | Duro-Last Poly-Plates or Duro-Last Cleat Plates | |
| Insulation (top): | Description: | Polyisocyanurate foam board | | | |
| | Application: | Mechanically fixed | | | |
| | Eligible Products: | Product | | | Min. Thickness (Top Layer) |
| | | Duro-Guard ISO II-A, Duro-Guard ISO II-E2, Duro-Guard ISO II-H, Duro-Guard ISO III-A, Duro-Guard ISO III-E2 or Duro-Guard ISO III-H | | | 25-mm (1-inch) |

ROOF SYSTEM ASSESSMENT REPORT, DYNAMIC UPLIFT RESISTANCE PER CSA A123.21

| | | | |
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| PRODUCTS/APPLICATION (CONTINUED): | | | |
|--|--------------------|---|------------------------------|
| Insulation Fasteners: | Description: | Corrosion resistant screw-type roofing fasteners with steel stress plates | |
| | Fixing Method: | Fasteners installed through stress plates, positioned to engage the top flange of the steel deck | |
| | Fixing Rate: | 1 part per 0.49 m ² (5.3 ft ²) 6 parts per 1220 x 2438 (48 x 96-inch) board | |
| | Eligible Products: | Fasteners | Plates |
| | | Duro-Last #14 Heavy Duty Fastener | Duro-Last 3-inch Metal Plate |
| Insulation (base): <i>(Optional if top layer min. 1.5-inch thick)</i> | Description: | Polyisocyanurate foam board | |
| | Application: | One or more layer(s), loose-laid with staggered joints | |
| | Eligible Products: | Product | Min. Thickness |
| | | Duro-Guard ISO II-A, Duro-Guard ISO II-E2, Duro-Guard ISO II-H, Duro-Guard ISO III-A, Duro-Guard ISO III-E2 or Duro-Guard ISO III-H | 25-mm (1-inch) |
| Vapour Barrier: | Description: | extruded polyethylene film | |
| | Application: | Loose-laid with taped joints | |
| | Eligible Products: | Duro-Blue | |
| Thermal Barrier: <i>(Optional)</i> | Description: | Cement-based, gypsum-based or mineral-wool board | |
| | Application: | Loose-laid, adhered or mechanically-fixed | |
| | Eligible Products: | Any approved product acceptable to the named customer and the Authority Having Jurisdiction | |
| Deck: | Tested Product: | Steel roof deck | |



ROOF SYSTEM ASSESSMENT REPORT, DYNAMIC UPLIFT RESISTANCE PER CSA A123.21

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| NOTES: | | | | | | | | |
|--------------------------------|--|-----|--------------|-----|-----------------------|-----|--------------|-----|
| Test Value and Design Value: | The "Test Value" noted herein reflects the ultimate passing test pressure recorded during testing. The "Design Value" herein reflects the "Test Value" multiplied by a resistance factor of 0.65 (same as "Test Value" divided by a safety factor of 1.5) The "Design Value" should meet or exceed the design pressure requirements of the project, as determined in accordance with the current National Building Code of Canada (NBC) requirements. | | | | | | | |
| Equivalence of Other Products: | This report applies only to the products listed as "Eligible Products" herein. | | | | | | | |
| Optional Components: | Components listed herein as "optional" may be removed from the roof system design with no adverse effect on system dynamic wind uplift performance. | | | | | | | |
| As-Tested Deck: | Testing utilized 22 ga., Type B (6-inch deck module) steel deck meeting ASTM A653, A792, A1008 or CSSBI 10M standard and having a yield strength of 275 MPa (40-ksi). Alternate deck displaying equivalent strength and fastener-holding capacity (withdrawal resistance) may be specified at the discretion of the Designer of Record to the satisfaction of the Authority Having Jurisdiction. | | | | | | | |
| Fastener Point-Loads: | Roof Cover Point-Load | | | | Insulation Point-Load | | | |
| | Sustained Test Value | | Design Value | | Sustained Test Value | | Design Value | |
| | N | lbf | N | lbf | N | lbf | N | lbf |
| | 1601 | 360 | 1041 | 234 | 1897 | 426 | 1233 | 277 |

RSAR SCOPE

Roof System Assessment Reports (RSAR) constitute a summary of allowable products and interfaces used in low-slope roof assemblies based testing in accordance with CSA A123.21 at our ISO/IEC 17025 accredited laboratory.

While RSAR's are reviewed and renewed each 3-years based primarily on report holder declaration, these are not Certification listings, and are not intended to state or imply ongoing quality control / surveillance activities by NEMO at the report holder's facilities.

NEMO ETC, LLC is not, in any way, the Designer of Record for any project on which these RSAR's, or previous versions thereof, is/was used for permitting or design guidance. RSAR's are not to be construed as representing any attributes not specifically listed, nor to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by NEMO ETC, LLC, express or implied, as to any finding or other matter in these RSAR's, or as to any product covered by the RSAR's.

| NEMO ETC CREDENTIALS | | |
|-------------------------------|---|----------------------------|
| TYPE | ENTITY | REFERENCE |
| ISO/IEC 17025 Accreditation | International Accreditation Service (IAS) | TL-689 |
| TAS 301 Certification | Miami-Dade | 21-0409.01 |
| Third Party Test Data Program | UL, LLC | DA2862 |
| Test Lab Listing | Roofing Contractors Association of British Columbia | RCABC Labs |

| REPORT HISTORY | | | |
|----------------|-------|---|----------------|
| DATE | EVENT | NOTES | AUTHORIZED BY: |
| 2021-01-11 | FINAL | None | RN |
| 2022-07-12 | REV1 | Re-Validation | RN |
| 2025-07-10 | REV2 | Re-Validation, reformat, add insulation options | RN |

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END OF REPORT