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ENGINEER

TEST

CONSULT

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

CUSTOMER:	DURO-LAST a division of Holcim Solutions and Products US, LLC.	TEST DATE:	2022-02-09
DOCUMENT NO.	DL-MARS-16.1	PUBLICATION DATE:	2025-03-05
TEST PANEL NO.	DL-D5	REVISION NO.	1
SYSTEM TYPE:	C-2	REEVALUATION DATE:	2028-03-05

MECHANICALLY ATTACHED ROOFING SYSTEM (MARS) SUMMARY**ROOFING SYSTEM SUMMARY:**

Membrane:	Single ply, thermoplastic membrane, induction-welded
Coverboard:	Oriented strand board (OSB), adhesive-applied and mechanically fixed
Insulation:	Expanded polystyrene (EPS), adhesive-applied
Vapor Barrier:	SBS modified bitumen membrane with trilaminate woven polyethylene top surface, self-adhering
Deck:	Structural concrete

DYNAMIC UPLIFT RESISTANCE PER CSA A123.21:

Test Value:	2,9 kPa (-60 psf)
Design Value: (resistance factor 0.65)	1,9 kPa (-40 psf)

PRODUCTS / APPLICATION:

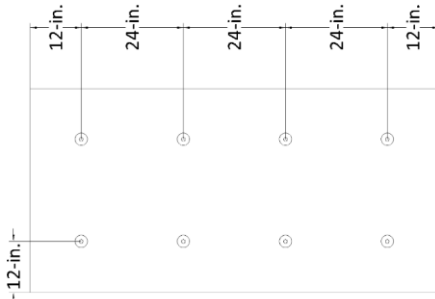
Membrane:	Description:	Membrane composed of a polyester reinforcement coated with proprietary thermoplastic compound	
	Application:	Induction-welded	
	Eligible Products:	Duro-Last, Duro-Last EV or Duro-Tuff	
Coverboard:	Description:	Oriented strand board (OSB)	
	Application:	Adhesive-applied and mechanically fixed	
	Thickness:	Minimum 18.3-mm (23/32-inch)	
	Eligible Products:	23/32-in. TECO rated, Exposure 1, PS-2 OSB	
Coverboard Adhesive:	Description:	Polyurethane based insulation adhesive	
	Application:	Continuous ribbons, 305-mm (12-inch) on-center	
	Eligible Products:	<u>By</u>	<u>Product</u>
		Duro-Last:	Duro-Grip WeatherTite One Step
		H.B. Fuller Company:	Millennium One Step Foamable Adhesive

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

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PRODUCTS / APPLICATION:

Coverboard Fasteners:	Description:	Corrosion resistant screw-type roofing fasteners with steel stress plates with proprietary coating designed to receive induction-welded membrane		
	Fastening Method:	Fasteners installed through stress plates <u>to engage the adhered OSB coverboard</u>		
	Fastener Density:	1 part per 0.37 m² (4 ft²) in a 0.6 x 0.6-m (2 x 2-ft) grid pattern		
	Eligible Products:	2-in. long Duro-Last #15 EHD Drill Point Fasteners with plate options noted below		
		<u>Membrane</u>	<u>Thickness</u>	<u>Stress Plate Options</u>
		Duro-Last	Min. 40-mil	Duro-Bond Plate 1302 or Duro-Bond PVC IW Plate
		Duro-Last	Min. 60-mil	Duro-Bond ISO WELD 1302-1
Duro-Last EV		Min. 50-mil	Duro-Bond Plate 1302, Duro-Bond ISO WELD 1302-1 or Duro-Bond PVC IW Plate	
Duro-Tuff	Min. 50-mil	Duro-Bond Plate 1302, Duro-Bond ISO WELD 1302-1 or Duro-Bond PVC IW Plate		
Insulation:	Description:	Expanded polystyrene (EPS)		
	Application:	Two (2) or more layers with staggered joints, adhesive-applied		
	Thickness:	Minimum 102-mm (4-inch)		
	Eligible Products:	Plasti-Fab, Ltd	PlastiSpan, Type 1	
Insulation Adhesive:	Description:	Polyurethane based insulation adhesive		
	Application:	Continuous ribbons, 305-mm (12-inch) on-center		
	Eligible Products:	<u>By</u>	<u>Product</u>	
		Duro-Last:	Duro-Grip WeatherTite One Step	
	H.B. Fuller Company:	Millennium One Step Foamable Adhesive		
Vapour Barrier:	Description:	SBS modified bitumen membrane with trilaminate woven polyethylene top surface		
	Application:	Self-adhering		
	Eligible Products:	Duro-Last Vapor Barrier		
Primer:	Description:	Solvent-based, synthetic rubber primer		
	Application:	~0.5 gal/square		
	Eligible Products:	Duro-Last VB Primer		
Deck:	Min. 2,500 psi structural concrete			

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 a simulated structural concrete deck. 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-Load:	The coverboard fastener point-loads resisted during this test are: <ul style="list-style-type: none"> • Test Value: 1067 N (240 lbf) • Design Value: 712 N (160 lbf)

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:
2022-02-22	FINAL	None	RN
2025-03-04	RE-EXAMINATION	Pre-scheduled re-examination and renewal; reformat to current	RN

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END OF REPORT