



**PERFORMANCE EQUIVALENCIES
FOR NC65 STH FENESTRATION SYSTEM**

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PERFORMANCE EQUIVALENCIES FOR NC65 STH FENESTRATION SYSTEM

1. INTRODUCTION

This report covers the verification of the performance equivalencies for the NC65 STH fenestration system. The process for the performance equivalencies is based on comparative tests performed on the different fenestration configurations and dimensions. The original report issued to “**Metra Architectural Systems - North America** ” is hereby reissued to “**Dalmen Windows & Doors**” for their use as an under licence product manufacturer.

2. PRODUCTS COVERED BY THE EQUIVALENCE

The products covered by the performance equivalencies are the following:

- NC65 STH HES WS – Inward Opening Window
- NC65 STH HES WX – Outward Opening Window
- NC65 STH HES GD – Inward Opening Door

3. DESCRIPTION OF THE EQUIVALENCIES

Based on the results of the comparative tests conducted on different configurations and dimensions of fenestration products, we can confirm the following:

- 1) The NAFS test reports for NC65 STH fenestration products are valid for the following frame options:
 - NC15502
 - NC15505
 - NC15508
 - NC15510
 - NC15512
 - NC15514
 - NC15516
 - NC15518

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- NC15520
 - NC15526
 - NC15627
 - NC15812
 - NC70501
 - NC70519
 - NC70548
 - NC70554
 - CS75260
 - CS75269
- 2) The NAFS test reports for NC65 STH HES WS – Inward Opening Windows are valid for the following sash options:
- NC15737
 - NC15740
 - NC15743
- 3) The NAFS test reports for NC65 STH HES WX – Outward Opening Windows are valid for the following sash options:
- NC15621
 - NC15799
- 4) The NAFS test reports for NC65 STH HES GD – Inward Opening Doors are valid for the following sash options:
- NC15836
 - NC70504
- 5) The NAFS test performances for NC65 STH fenestration system are valid with the following glazing stops options:
- NC13585
 - NC13586
 - NC13587

The frame and sash options covered by this equivalency report are shown on two drawings presented in Appendix A of this report.

The drainage system for the frame options covered by this equivalency report are shown on two drawings presented in Appendix B of this report.

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4. PERFORMANCE EQUIVALENCIES

Based on the results of the comparative tests conducted on different configurations and dimensions of fenestration products, the performances for the NC65 STH fenestration system are as follows:

Table 4.1
Dual-Action Window (DAW) / NC65 STH HES WS

File no.	AI-04915-A1
Designators	<p>Primary Product Designator Class AW – PG80 : Size tested 1500 x 2500 mm (~59 x 98 in) – Type DAW</p> <p>Secondary Designator Positive Design pressure (DP) = 3840 Pa (~80.20 psf) Negative design pressure (DP) = -3840 Pa (~-80.20 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = A3 Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC15502, NC15505, NC15508, NC15510, NC15512, NC15514, NC15516, NC15518, NC15520, NC15526, NC15627, NC15812, NC70519, NC70548, NC70554, CS75260 & CS75269</p> <p>Sashes NC15740 & NC15743</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

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**Table 4.2
Hopper Window (AP) / NC65 STH HES WS**

File no.	AI-04915-B1
Designators	<p>Primary Product Designator Class AW – PG120 : Size tested 1500 x 900 mm (~59 x 35 in) – Type AP</p> <p>Secondary Designator Positive Design pressure (DP) = 5750 Pa (~120.09 psf) Negative design pressure (DP) = -5750 Pa (~-120.09 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = A3 Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC15502, NC15505, NC15508, NC15510, NC15512, NC15514, NC15516, NC15518, NC15520, NC15526, NC15627, NC15812, NC70519, NC70548, NC70554, CS75260 & CS75269</p> <p>Sashes NC15737, NC15740 & NC15743</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

**Table 4.3
Fixed Window (FW) / NC65 STH HES WS**

File no.	AI-04915-C1
Designators	<p>Primary Product Designator Class AW – PG125 : Size tested 1500 x 2500 mm (~59 x 98 in) – Type FW</p> <p>Secondary Designator Positive Design pressure (DP) = 5990 Pa (~125.10 psf) Negative design pressure (DP) = -5990 Pa (~-125.10 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = Fixed Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC15502, NC15505, NC15508, NC15510, NC15512, NC15514, NC15516, NC15518, NC15520, NC15526, NC15627, NC15812, NC70519, NC70548, NC70554, CS75260 & CS75269</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

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Table 4.4
Casement Window (C) / NC65 STH HES WX

File no.	AI-04915-D1
Designators	<p>Primary Product Designator Class AW – PG80 : Size tested 900 x 1500 mm (~35 x 59 in) – Type C</p> <p>Secondary Designator Positive Design pressure (DP) = 3840 Pa (~80.20 psf) Negative design pressure (DP) = -3840 Pa (~-80.20 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = A3 Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC15502, NC15505, NC15508, NC15510, NC15512, NC15514, NC15516, NC15518, NC15520, NC15526, NC15627, NC15812, NC70519, NC70548, NC70554, CS75260 & CS75269</p> <p>Sashes NC15621 & NC15799</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

Table 4.5
Awning Window (AP) / NC65 STH HES WX

File no.	AI-04915-E1
Designators	<p>Primary Product Designator Class AW – PG120 : Size tested 1500 x 900 mm (~59 x 35 in) – Type AP</p> <p>Secondary Designator Positive Design pressure (DP) = 5750 Pa (~120.09 psf) Negative design pressure (DP) = -5750 Pa (~-120.09 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = A3 Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC15502, NC15505, NC15508, NC15510, NC15512, NC15514, NC15516, NC15518, NC15520, NC15526, NC15627, NC15812, NC70519, NC70548, NC70554, CS75260 & CS75269</p> <p>Sashes NC15621 & NC15799</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

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Table 4.6
Architectural Terrace Door (ATD) / NC65 STH HES GD - Inward Opening Single Door

File no.	AI-04915-I1
Designators	<p>Primary Product Designator Class AW – PG70 : Size tested 1220 x 2440 mm (~48 x 96 in) – Type ATD</p> <p>Secondary Designator Positive Design pressure (DP) = 3360 Pa (~70.18 psf) Negative design pressure (DP) = -3360 Pa (~-70.18 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = A3 Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC70501 & NC70548</p> <p>Sashes NC15836 & NC70504</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

Table 4.7
Architectural Terrace Door (ATD) / NC65 STH HES GD - Inward Opening Double Door

File no.	AI-04915-J1
Designators	<p>Primary Product Designator Class AW – PG50 : Size tested 2400 x 2400 mm (~94 x 94 in) – Type ATD</p> <p>Secondary Designator Positive Design pressure (DP) = 2400 Pa (~50.13 psf) Negative design pressure (DP) = -2400 Pa (~-50.13 psf) Water penetration resistance test pressure = 720 Pa (~15.04 psf) Canadian air infiltration/ exfiltration level = A3 Level (NAFS-11) / Passed (NAFS-17)</p>
Options covered	<p>Frames NC70501 & NC70548</p> <p>Sashes NC15836 & NC70504</p> <p>Glazing stops NC13585, NC13586 & NC13587</p>

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5. CONCLUSION

Based on the comparative tests conducted in accordance with the NAFS "North American Fenestration Standard / Specification for windows, doors, and skylights" standard, this report confirms the equivalencies of the options for the NC65 STH fenestration system designed by METRA, as listed in Section 4.0 of this report.

This report does not constitute certification of this product, which may only be granted by a certification agency.

Note on the Limitation of Liability:

Due care was taken in performing the testing sequence and in reporting the results related to the test specimen received for evaluation. Through acceptance of this report, the Client agrees to exempt UL Laboratory Canada Inc. employees and owners from all liability claims and demands arising from any matter related to or concerning the quality and execution of the performance evaluation contained in this report.

6. REVISION LOG

Rev. #	Date	Page(s)	Revision(s)
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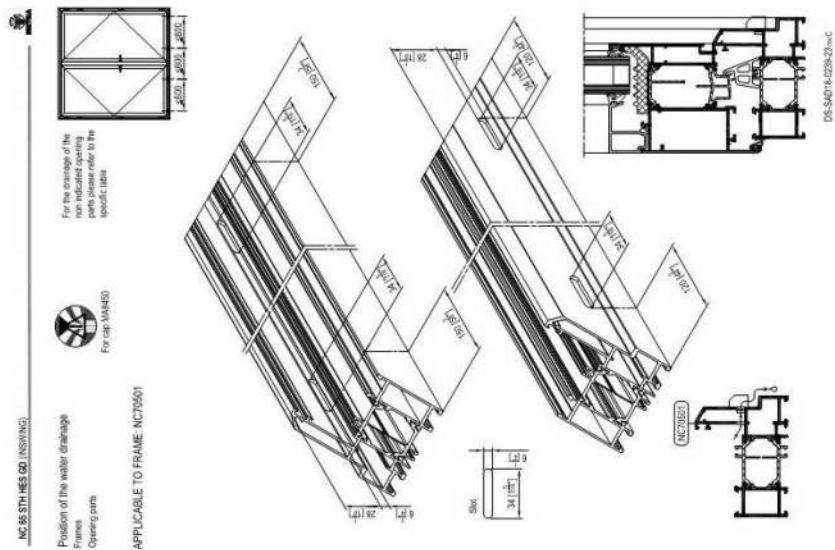
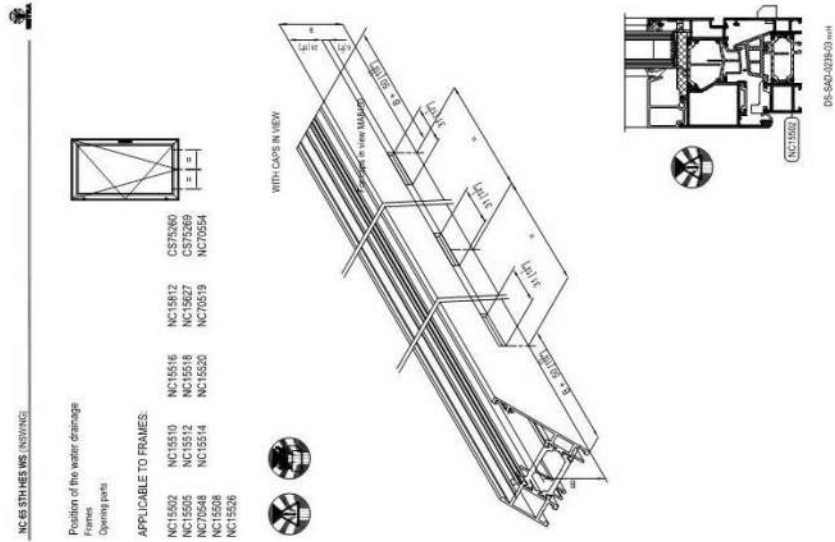
**APPENDIX A
FRAMES & SASHES OPTIONS
COVERED BY THE EQUIVALENCE REPORT
(2 DRAWINGS)**

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**APPENDIX B
POSITION OF THE WATER DRAINAGE
(2 DRAWINGS)**

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INSWING



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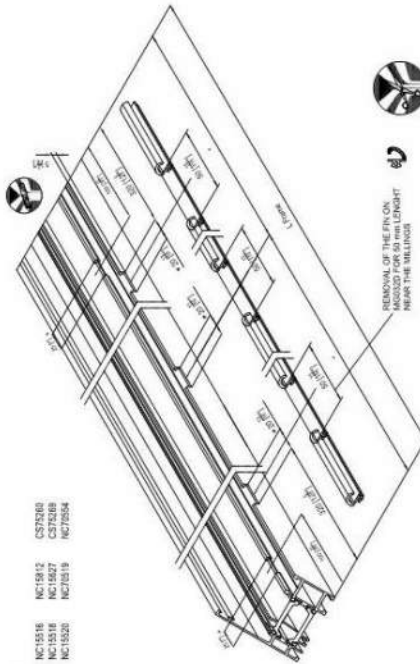
OUTSWING

NC 65 ETH-HES-EX (OUTSWING)

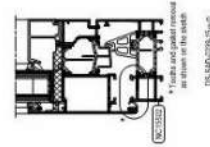
Position of the water drainage
Frames (frame width 50 to 150 mm)
Insulation with proprietary spacing

APPLICABLE TO FRAMES:

- NC15502 NC15510 NC15516 C375208
- NC15505 NC15512 NC15518 C375209
- NC15508 NC15514 NC15520 NC15519 C375209
- NC15509 NC15515 NC15521 NC15519 C375209
- NC15508 NC15514 NC15520 NC15519 C375209
- NC15509 NC15515 NC15521 NC15519 C375209



REMOVAL OF THE FILON
NEEDED FOR AN OUTSWING
NEAR THE SILLINGS



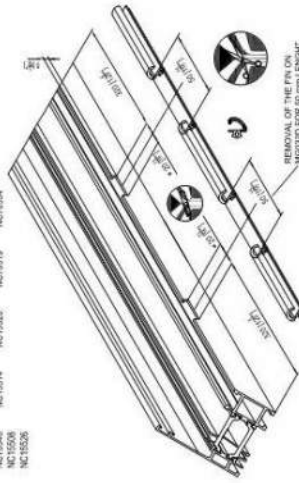
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NC 65 ETH-HES-EX (OUTSWING)

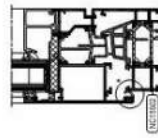
Position of the water drainage
Frames (frame width 50 to 150 mm)
Insulation with proprietary spacing

APPLICABLE TO FRAMES:

- NC15502 NC15510 NC15516 C375208
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- NC15509 NC15515 NC15521 NC15519 C375209



REMOVAL OF THE FILON
NEEDED FOR AN OUTSWING
NEAR THE SILLINGS



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