STARLINE WINDOWS

Series D3500 & D3600 Product Catalogue

Thermally Enhanced Aluminum Outswing Balcony Door

Available in Double & Triple Glazed

Foreword

This Product Catalogue provides design guidelines, manufacturing capabilities, and specifications on the Series D3500 and D3600 Thermally Enhanced Aluminum Outswing Balcony Doors. The D3500 and D3600 are available in double and triple glazed.

This document is intended to provide information on our standard products. Non-standard designs and applications can be reviewed to determine the feasibility on a project-specific basis.

Please email any project specific enquiries to technical@starlinewindows.com or architectural@starlinewindows.com.

This document subject to change without notice.

Starline Windows reserves the right to change or discontinue this product without notice.

www.starlinewindows.com

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Recommended Size Guidelines

Starline Windows provides maximum guidelines for the door module area and weight for new construction and restoration projects.

The Series D3500 & D3600 are available in double and triple glazing. Unless specifically stated, the information contained in this document applies to both double and triple glazing.

New Construction Project Maximums

FINISHES (POWDER COAT)	MAXIMUM WEIGHT (POUNDS)	MAXIMUM AREA (SQ FT)
Meets AAMA 2603 and 2604 Specification	240	45
Meets AAMA 2605 Specification	220	43

Renovation Project Maximums

FINISHES (POWDER COAT)	MAXIMUM WEIGHT (POUNDS)	MAXIMUM AREA (SQ FT)
Meets AAMA 2603 and 2604 Specification	220	43
Meets AAMA 2605 Specification	200	40

Note:

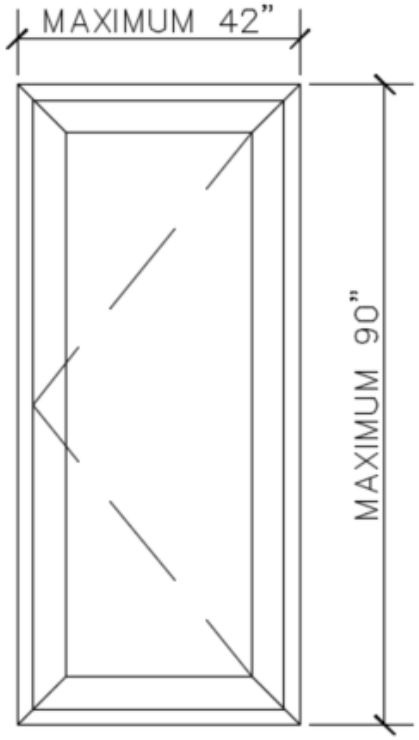
Limitations are guidelines and depend on site conditions.

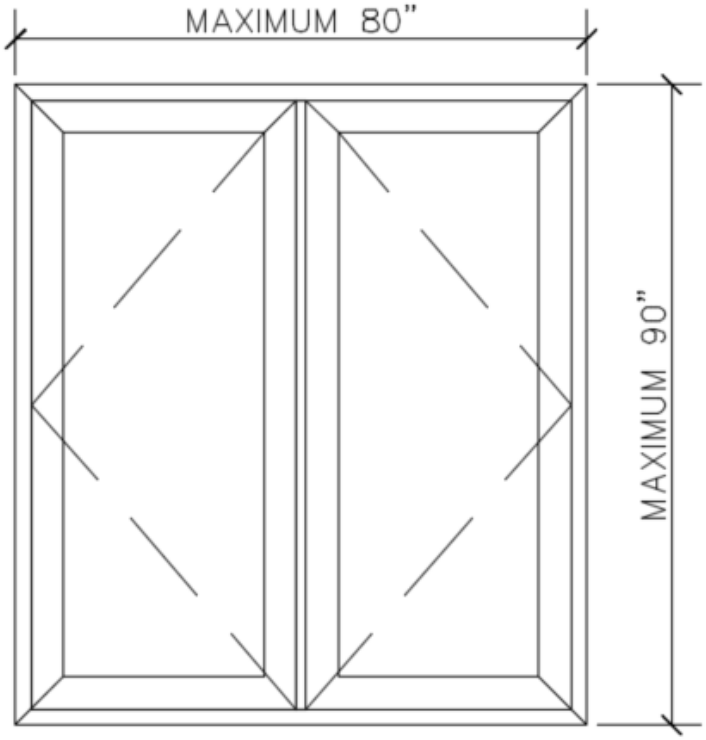
Door Module Width and Height

DOOR CONFIGURATION	DOOR MODULE WIDTH		DOOR MODULE HEIGHT	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
Single Swing Door	28”	44”	60” + Transom	90” + Transom
Double Swing Door	56” (Both Leafs)	80” (Both Leafs)	60” + Transom	90” + Transom

Note:

- All of the swing door configurations can be integrated (coupled) to any of our window wall series.
- Transom windows are available.
- Horizontal coupling is not available.



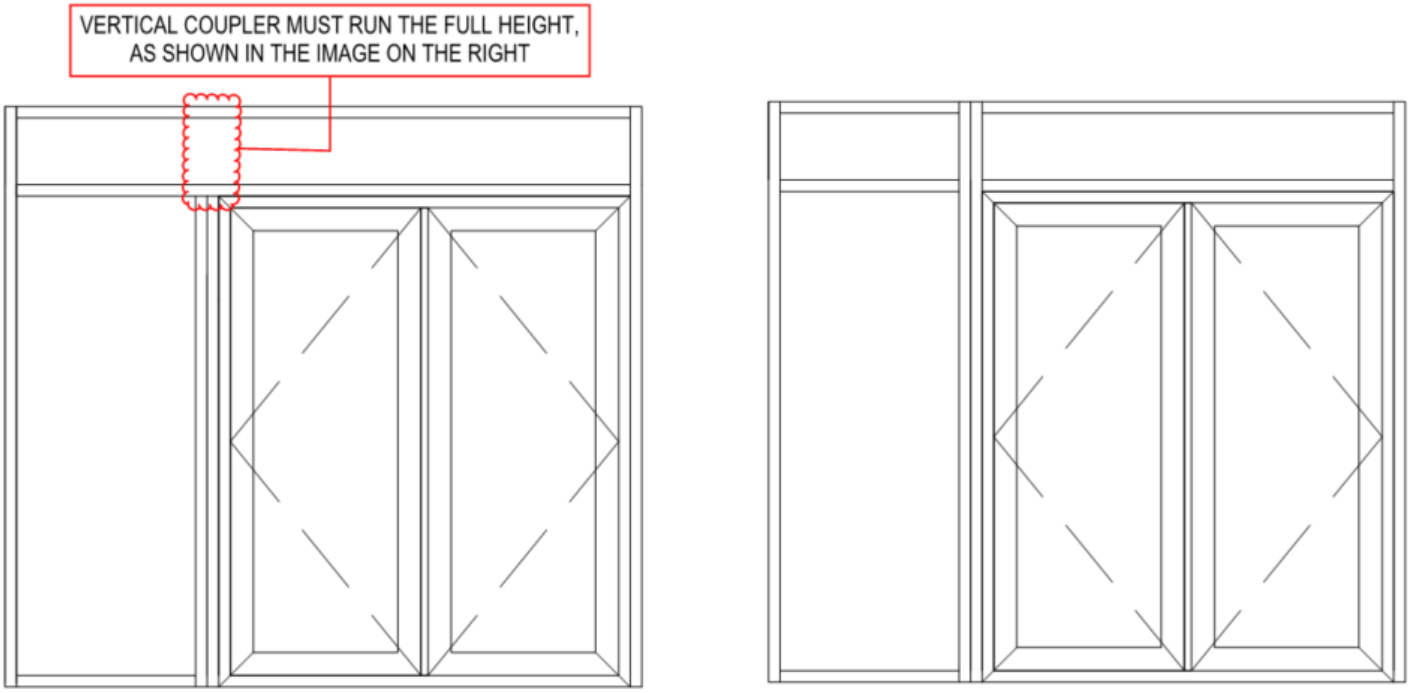


Radius Door and Transom

Starline Windows does not offer radius swing doors or radius transoms.

Crippled Mullions

Starline cannot manufacture windows and doors with crippled mullions/couplers. All vertical mullions/couplers and horizontal mullions within a window or door module must run full height and width of the window or door module.



FIXED WINDOW COUPLED TO A FRENCH OUTSWING DOOR

Door Hardware

The D3500 & D3600 Series has an interior and exterior lever handle as well as an escutcheon plate made from zinc diecast. Handles are available in brush chrome finish, black, and white.

Thumb turns are a half-moon. The swing door comes with an overhead holder (stay arm).

Two butt hinges are included for a double glazed swing door 80” and shorter. Should the door exceed 80”, be a double laminated unit or be triple glazed, then three hinges are required. The butt hinges are powder coated the same color as the door leaf.

Note: Keyed locks are not available.

Standard Handle

The handles are non-handed and are suitable for both left and right hand doors.

Lever Handles and Escutcheon Plates are made from Zinc diecast.

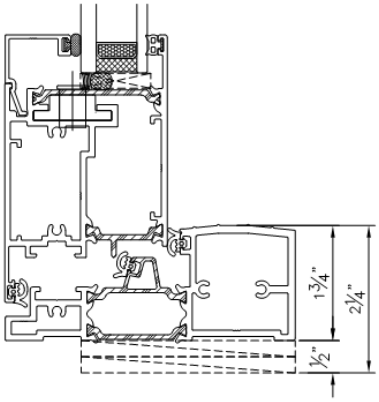
Cylinders are made from solid brass.

Available in brush chrome finish, black and white.

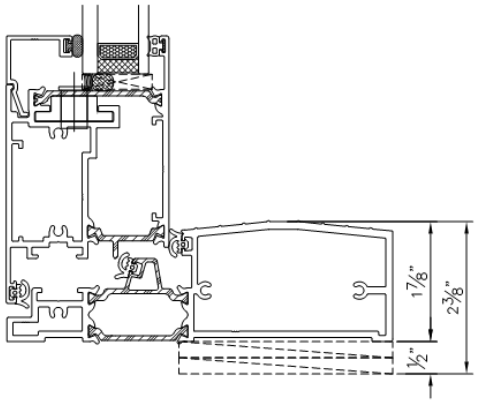
Email any project-specific enquiries to architectural@starlinewindows.com or technical@starlinewindows.com

Door Threshold Heights & Field Water Ratings the Thresholds Achieve

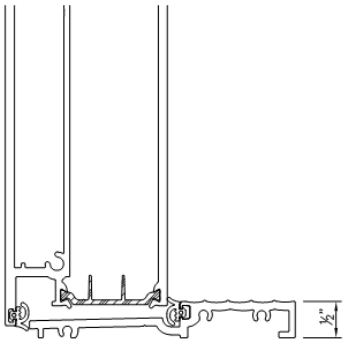
Starline's standard outswing door Series D3500/D3503 threshold provides a step of 1 3/4". Accessible (ADA) threshold is available with the 1 3/4". The Series D3600/D3603 threshold provides a step of 1 7/8". Accessible (ADA) threshold is available with the 1 7/8"



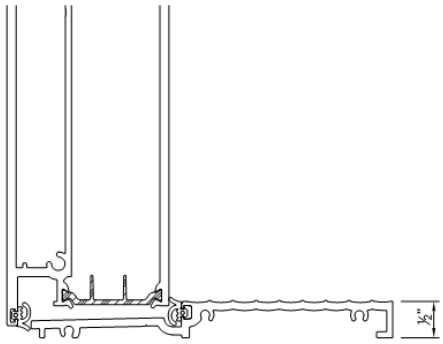
STANDARD THRESHOLD
Water penetration resistance field tests up to 500Pa



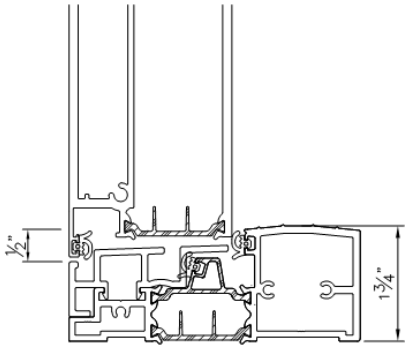
STANDARD THRESHOLD
Water penetration resistance field tests up to 500Pa



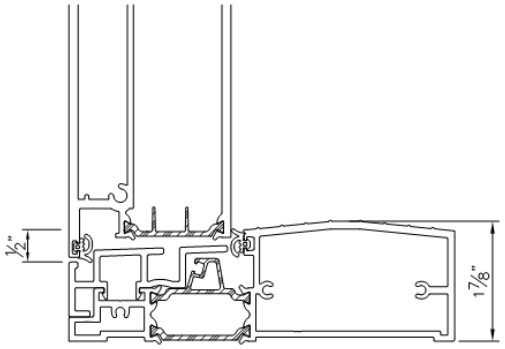
1/2" ACCESSIBLE (ADA) THRESHOLD
Water penetration resistance field tests up to 100Pa



1/2" ACCESSIBLE (ADA) THRESHOLD
Water penetration resistance field tests up to 100Pa



1 3/4" ACCESSIBLE (ADA) THRESHOLD
Water penetration resistance field tests up to 500Pa



1 7/8" ACCESSIBLE (ADA) THRESHOLD
Water penetration resistance field tests up to 500Pa

When detailing curb heights on a project; be mindful that the overall curb height does not exceed the maximum height / allowable step by the building code.

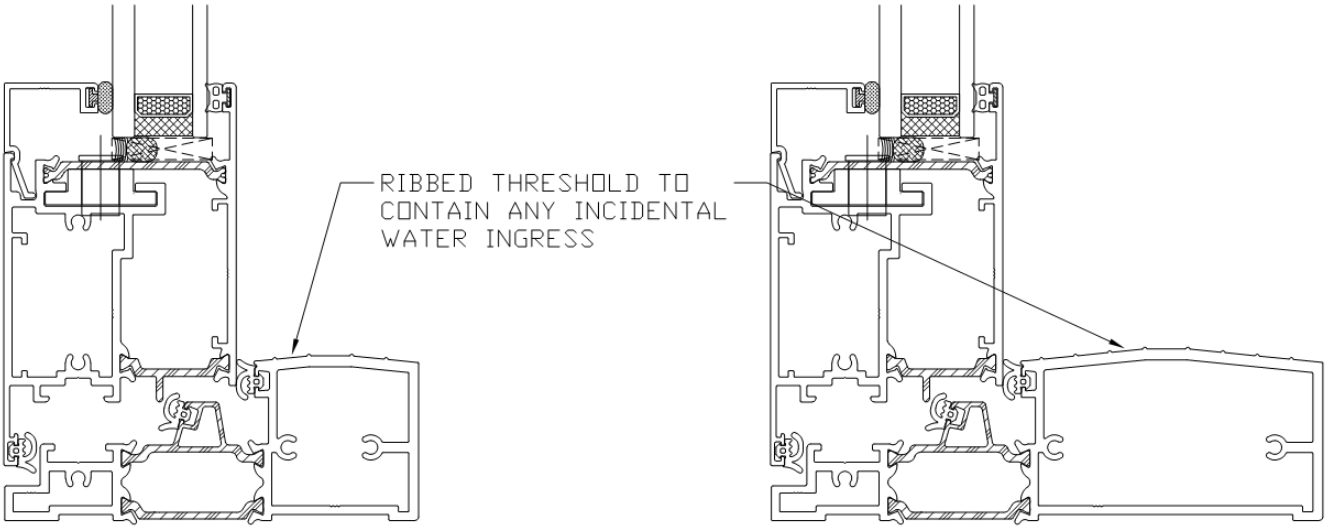
For example, as per the BC Building Code, the maximum step allowed is 8” (200mm). In this case, using the standard threshold for the D3500 with a 6” (150mm) tall curb would be too tall. A threshold height of 1 3/4" (45mm) + 1/2" (13mm) for shimming + a 6” (150mm) curb would exceed the maximum allowable step of 8” (200mm) as per code.

Note: Maximum step height allowed will depend on the project specific location.

Incidental Water Ingress Control

The D3500 & D3600 Outswing Balcony Door is designed with a ribbed threshold to contain any incidental water ingress, should it occur.

The door system has been tested to and is compliant with, the AAMA/WDMA/CSA 101 I.S.2/A440-017 & CSA A440S1-17 standards[1].

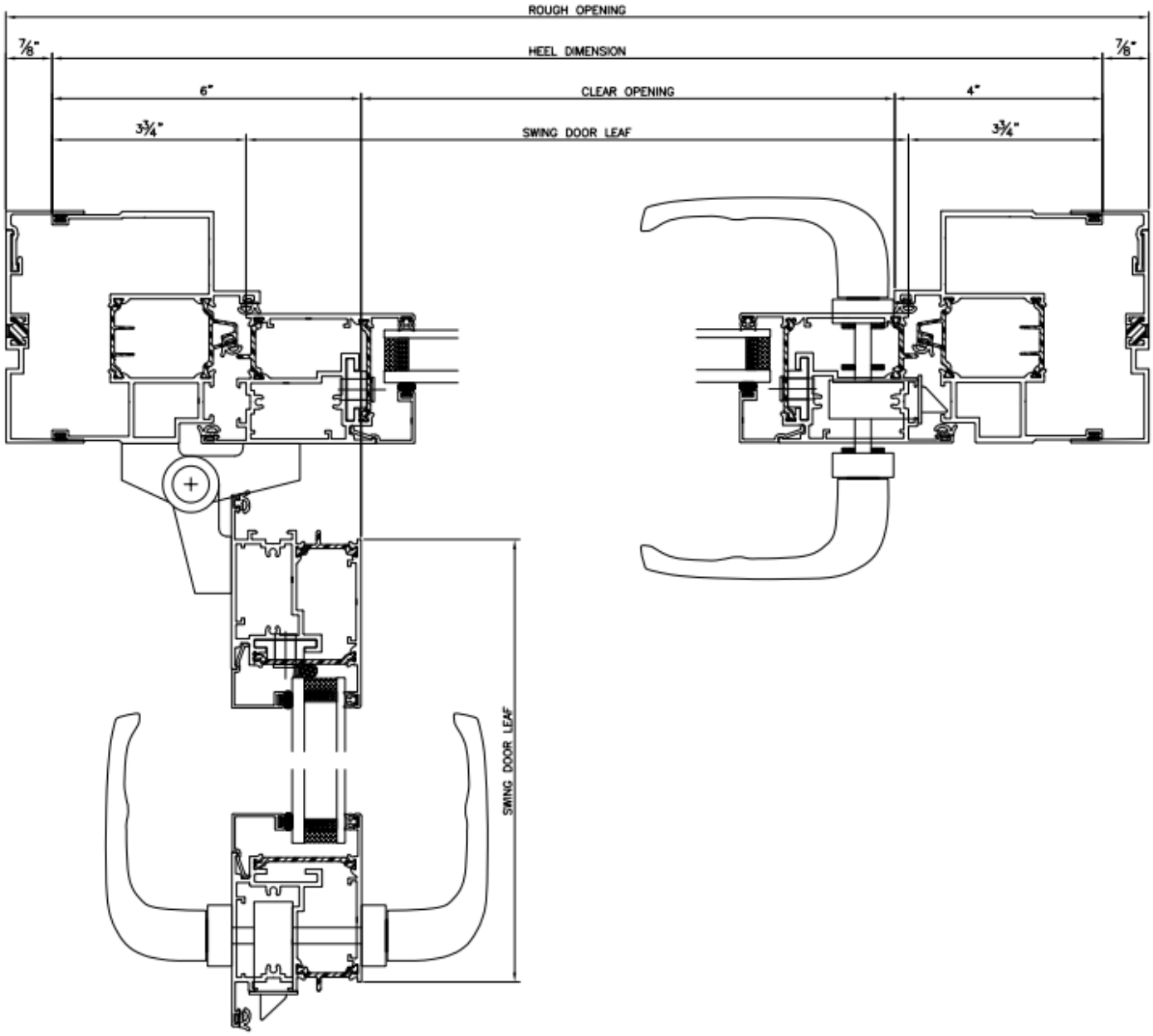


D3500 SERIES – 4 ½” FRAME DEPTH

D3600 SERIES – 6” FRAME DEPTH

These standards require water penetration resistance lab tests to be performed in accordance with ASTM E547 and ASTM E331.

However, it is important to note that some condensation or incidental water ingress may occur under high humidity or severe weather events. To contain this incidental moisture, the system is designed with a ribbed threshold which will store and manage any moisture until it is dried out.



[1] Albeit the door system has been tested to, and is compliant with, the AAMA/WDMA/CSA 101 I.S.2/A440-017 & CSA A440S1-17 standards, this is for a specific door size and configuration. For project specific door configurations that do not fall under the approved lab tested size and configuration, field tests shall be performed.

Insulation

The standard Series D3500 / D3600 insulation is as follows:

- R-Matte plus 3 rigid polyiso insulation, or equivalent is the standard insulation for aluminum and galvanized steel sandwich panel applications. The overall insulation thickness for sandwich panel is 1” for standard double glazed and 1 ½” for triple glazed and the wider double-glazed option.
- Rockwool Fabrock 30 and / or Rockwool Fabrock LT mineral wool fibre insulation, or equivalent, with an overall thickness of 3” for spandrel glass, aluminum panel and galvanized panel application. The R-value/inch @ 75°F is 4.1 hr.ft².F/Btu.

The insulation will be installed as follows:

- The deflection header clip, seismic jambs and couplers will be insulated onsite.
- The corner posts (except seismic pocket), jambs and heads will be insulated in the factory.
- The sill cannot be insulated due to wicking concerns.

Finishes (Powder Coating)

Starline uses a thermoset coating specifically designed for architectural systems. This coating complies with the American Architectural Manufacturers Association (AAMA) 2603 specification standard which covers pigmented organic coatings on aluminum extrusions.

There are options to upgrade the powder to meet the AAMA 2604 or AAMA 2605 specification on the exterior which is noted in the **Options** section below.

Options

There is an option to upgrade the powder coating to meet a the following AAMA standards:

- A thermoset super durable coating which complies with the AAMA 2604 specification standards. The AAMA 2604 standard demands advanced levels of weather resistance, gloss and colour retention, and corrosion resistance, among other increased standards when compared to the AAMA 2603 specification standard.
- A thermoset fluorocarbon coating which is a superior coating that complies with the AAMA 2605 specification standard. The AAMA 2605 standard demands advanced levels of weather resistance, gloss and colour retention, and corrosion resistance, among other increased standards when compared to the AAMA 2603 and AAMA 2604 specification standards.

Note: AAMA 2604 or AAMA 2605 specification standard on exterior of frames may be required in some building codes, bylaws, jurisdictions, etc**.**

Custom colours may be available on a project-specific basis.

Dual frame colour is available.

Items listed in this ***Options*** section are available at an additional cost.

Colour Options

The following **standard colours** are available in AAMA 2603, AAMA 2604 and AAMA 2605 specification standards:

White Black Brown Silver Charcoal Grey

Custom colours are also available. Virtually any colour can be matched or very closely matched. The scope of work and overall custom colour quantity will be reviewed by Starline on a project specific basis to determine the feasibility of the custom colour request.

Note: Custom colours are available for an additional cost premium. An approximate 12-week lead time is required to procure custom colour requests.

Refer to the ***Aluminum Finishes (Powder Coating)*** document in the Miscellaneous section of the catalogue for images of the standard colours available, a comparison of some attributes which are tested for in the AAMA 2603, AAMA 2604 and AAMA 2605 specification standards, information on colour retention, and details to consider when selecting colours.

Glazing

Starline Windows standard Series D3500 / D3600 insulated glass unit (IGU) will be comprised of the following glass make-up:

- Double glazed, double sealed IGU with an overall thickness of 1” (26 mm).
- Standard high performance soft coat (sputtered) Low E which is applied to surface #2.
- Black warm edge spacer with argon fill.
- Minimum glass thickness is 4mm and is tempered.

Options

There is an option to upgrade to the Series D3503 which offers a triple glazed IGU. A triple glazed IGU will provide enhanced energy performance. The Series D3503 IGU will be comprised of the following glass make-up:

- Triple glazing, double seal insulated glass unit with an overall thickness of 1 13/16” (46mm).
- Standard high performance soft coat (sputtered) Low E which is applied to surface #2.
- Black warm edge spacer with air fill.
- Minimum glass thickness is 4mm and is tempered.

Maximum Area of IGU

GLASS TYPE	SINGLE LITE	DOUBLE GLAZED			TRIPLE GLAZED		
	6mm	4mm	5mm	6mm & THICKER	4mm	5mm	6mm & THICKER
Annealed	–	30 sq.ft.	40 sq.ft.	40 sq.ft.	30 sq.ft.	35 sq.ft.	35 sq.ft.
Tempered	–	30 sq.ft.	40 sq.ft.	40 sq.ft.	30 sq.ft.	35 sq.ft.	35 sq.ft.
Laminated	–	–	–	28 sq.ft.[1]	–	–	28 sq.ft.[1]
Spandrel	40 sq.ft.	–	–	–	–	–	–
Spandrel IGU[2]	–	30 sq.ft.	40 sq.ft.	40 sq.ft.	–	–	–

[1] **Note:**

- 6mm laminated glass can be to a max area of 28 sq.ft,
- 6mm tempered laminated glass can be to a max area of 19.5 sq.ft.**;** max united inches <105".
- 8mm laminated can be to a max area of 35 sq.ft.
- 8mm tempered laminated glass can be to a max area of 30 sq.ft.**;** max united inches <150".
- 10mm laminated can be to a max area of 40 sq.ft.
- 10mm tempered laminated glass can be to a max area of 41 sq.ft.**;** max united inches <175".

United inches = One width + one height.

[2] The Spandrel glass lite is always minimum 6mm thick. For a spandrel IGU the spandrel lite must be the inboard lite and ceramic frit is required to be used.

Aspect Ratio of Glass

The maximum width to height ratio is 5:1 for any glass selected, less single lite spandrel glass which is 8:1.

Refer to the ***Aluminum Glass & IGU Design Guidelines*** document for more detailed information regarding size limitations, available configurations, defects, and definitions.

IGU Charts

SERIES D3500 DOUBLE GLAZED IGU: 26mm Overall thickness of primary seal (Butyl): 0.8mm

EXTERIOR		SPACER		INTERIOR	
mm	**inch**	**mm**	**inch**	**mm**	**inch**
4	5/32	18.6	3/4	4	5/32
4	5/32	15.6	5/8	6	1/4
5	3/16	15.6	5/8	5	3/16
6	1/4	12.6	9/16	6	1/4 .030
4	5/32	14.6	9/16	6LAM .030	1/4 .030
6	1/4	12.6	1/2	6LAM .030	1/4 .030

SERIES D3500 DOUBLE GLAZED IGU: 37mm Overall thickness of primary seal (Butyl): 0.8mm

EXTERIOR		SPACER		INTERIOR	
mm	**inch**	**mm**	**inch**	**mm**	**inch**
4	5/32	27.0[1]	1 1/16[1]	6	1/4
5	3/16	27.0[1]	1 1/16[1]	5	3/16
4	5/32	27.0[1]	1 1/16[1]	6LAM .030	1/4 .030

[1]Only available in mill finish aluminum spacer bar.

SERIES D3503 TRIPLE GLAZED IGU: 46mm Overall thickness of primary seal (Butyl): 0.8mm

EXTERIOR		SPACER		CENTRE		SPACER		INTERIOR	
mm	**inch**	**mm**	**inch**	**mm**	**inch**	**mm**	**inch**	**mm**	**inch**
4	5/32	17.46	11/16	4	5/32	15.88	5/8	4	5/32
4	5/32	15.88	5/8	4	5/32	14.29	9/16	6	1/4
6	1/4	14.29	9/16	4	5/32	14.29	9/16	6	1/4
6	1/4	12.70	1/2	4	5/32	14.29	9/16	8	5/16
6	1/4	11.11	7/16	4	5/32	12.70	1/2	10	3/8

Note:

- The IGU, glass thickness, and spacer bar size are based on nominal dimension. Actual dimensions will vary.
- There are other glass make-up combinations available other than noted in the above chart. The chart's purpose is to provide a few examples. There are various other combinations available that can be reviewed on a project specific basis.

Acoustical Ratings

D3500 SERIES – 26mm double glazed IGU

GLASS EXT.	GAP	GLASS INT.	TEST NUMBER	STC	OITC
4mm Temp.	14mm AIR	4mm Temp.	TL9128	33	27
5mm Temp.	17mm AIR	5mm Temp.	TL9127	33	28
5mm Temp.	16mm AIR	4mm Temp.	TL9131	36	30
4mm Temp.	17mm AIR	6mm Lam. (PVB 0.8mm)	TL9132	37	30
4mm Temp.	16mm AIR	6mm Temp.	TL9130	36	31
6mm Temp.	14mm AIR	6mm Lam. (PVB 0.8mm)	TL9134	37	31
6mm Temp.	13mm AIR	8mm Temp.	TL9129	36	32
5mm Temp.	16mm AIR	6mm Lam. (PVB 0.8mm)	TL9135	38	32
6mm Temp.	13mm AIR	8mm Lam. (PVB 0.8mm)	TL9133	38	33

D3503 SERIES – 46mm triple glazed IGU

GLASS EXT.	GAP	GLASS CENTRE	GAP	GLASS INT.	TEST NUMBER	STC	OITC
4mm Temp.	16mm	4mm Temp.	19mm	5mm Temp.	TL9091	37	29
6mm Temp.	18mm	4mm Temp.	14mm	4mm Temp.	TL9090	37	31
6mm Temp.	13mm	4mm Temp.	18mm	6mm Lam. (PVB 0.8mm)	TL9093	38	31
6mm Temp.	13mm	4mm Temp.	16mm	8mm Temp.	TL9092	37	32
6mm Temp.	16mm	4mm Temp.	11mm	8mm Lam. (PVB 0.8mm)	TL9094	39	32
6mm Temp.	12mm	4mm Temp.	13mm	10mm Lam. (PVB 0.8mm)	TL9088	39	32
6mm Temp.	13mm	4mm Temp.	10mm	12mm Lam. (PVB 0.8mm)	TL9089	38	34

Performance Test Results

Canada

PRODUCT DESIGNATOR	AIR TIGHTNESS	WATER PENETRATION RESISTANCE		UNIFORM LOAD DEFLECTION	RESISTANCE TO FORCED ENTRY
		LAB TESTED	FIELD TEST[1, 2]		
LC-PG30	A3	720 Pa	500 Pa	1920 Pa	AAMA 1304 - Pass

The D3500 Swing Door has been tested to AAMA/WDMA/CSA 101 I.S.2/A440-017 & CSA A440S1-17.

USA

PRODUCT DESIGNATOR	AIR TIGHTNESS	WATER PENETRATION RESISTANCE		UNIFORM LOAD STUCTURAL	RESISTANCE TO FORCED ENTRY
		LAB TESTED	FIELD TEST[1, 2]		
LC-PG30	0.02 CFM/ft^2 @ 1.57 psf	15.04 psf	10.4 psf	60.15 psf	AAMA 1304 - Pass

The D3500 Swing Door has been tested to AAMA/WDMA/CSA 101 I.S.2/A440-017 & CSA A440S1-17.

Note: Door complies with AAMA 1304 (Forced Entry Resistance) – 1330N (300 lbf) point load.

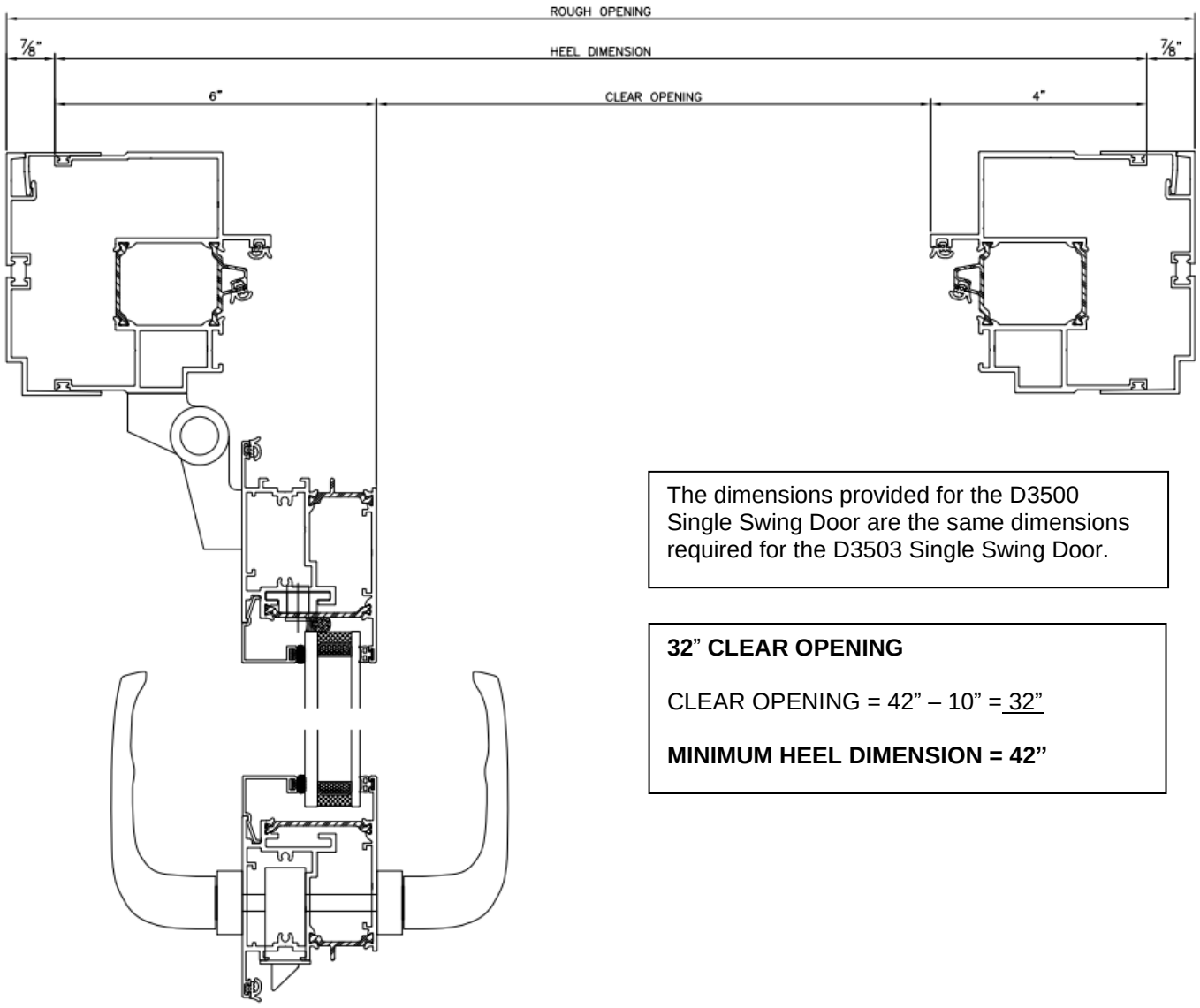
Door passes Operating/Cycling Performance test per AAMA 920 for 100,000 cycles.

[1] Water penetration resistance field tests follow the criteria and testing procedures as outlined in the AAMA 502-21 specification standard.

[2] 500Pa / 10.7 psf is the maximum field test result that can be achieved. Should the Project Specifications state a water penetration resistance field test pressure of a lesser value, the project specified values shall govern.

Series D3500 – Single Swing Door Clear Openings

Clear Opening Between Seismic Jambs



The dimensions provided for the D3500 Single Swing Door are the same dimensions required for the D3503 Single Swing Door.

32" CLEAR OPENING

CLEAR OPENING = 42" – 10" = 32"

MINIMUM HEEL DIMENSION = 42"

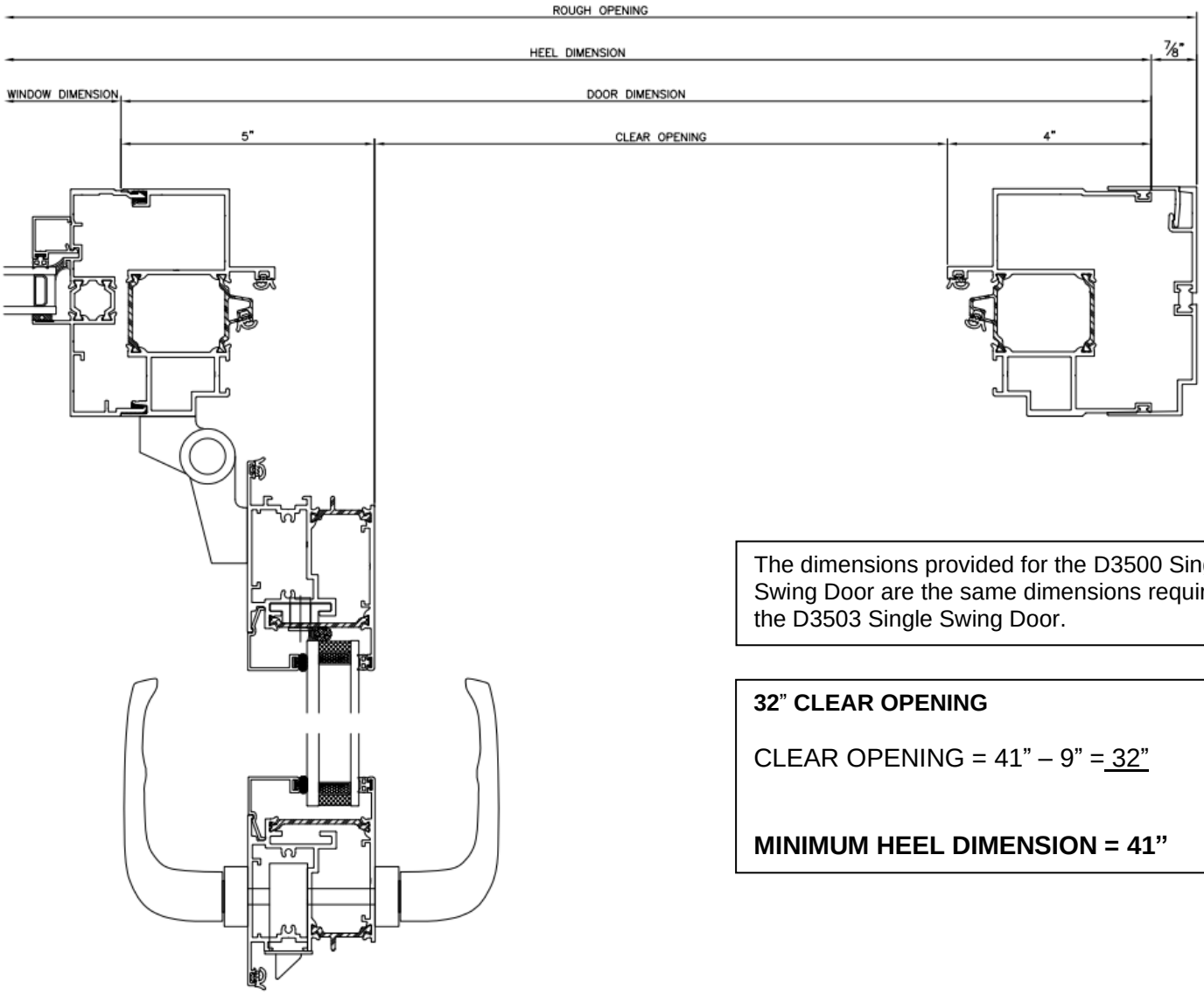
CLEAR OPENING = HEEL DIMENSION – 10"

STARLINE WINDOWS IS NOT RESPONSIBLE FOR DETERMINING THE CLEAR OPENING IN ANY JURISDICTION. IT IS UP TO THE PROJECT CONSULTANT(S) TO CONFIRM THE C.O. REQUIREMENT FOR ADA AND ACCESSIBLE SUITES AS IT CAN VARY FROM A 32" TO 34" C.O. DEPENDING ON THE JURISDICTION.

LIMITATION OF SINGLE SWING DOORS:

- MAX. WIDTH (LEAF DIMENSION) = 44"
- MAX. HEIGHT (LEAF DIMENSION) = 90"

Clear Opening Between Jamb and Coupler



The dimensions provided for the D3500 Single Swing Door are the same dimensions required for the D3503 Single Swing Door.

32" CLEAR OPENING

CLEAR OPENING = 41" – 9" = 32"

MINIMUM HEEL DIMENSION = 41"

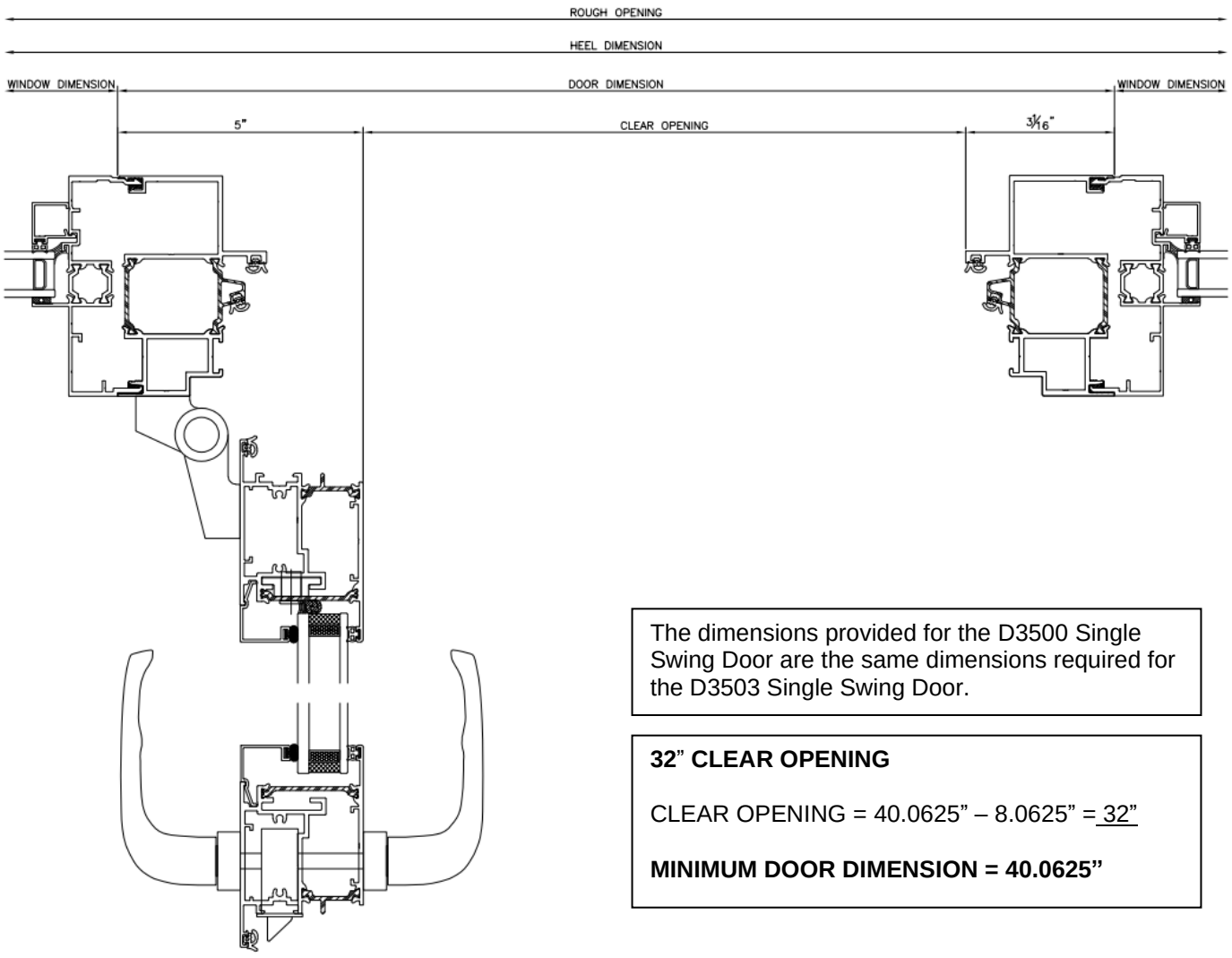
CLEAR OPENING = DOOR DIMENSION – 9"

STARLINE WINDOWS IS NOT RESPONSIBLE FOR DETERMINING THE CLEAR OPENING IN ANY JURISDICTION. IT IS UP TO THE PROJECT CONSULTANT(S) TO CONFIRM THE C.O. REQUIREMENT FOR ADA AND ACCESSIBLE SUITES AS IT CAN VARY FROM A 32" TO 34" C.O. DEPENDING ON THE JURISDICTION.

LIMITATION OF SINGLE SWING DOORS:

- MAX. WIDTH (LEAF DIMENSION) = 44"
- MAX. HEIGHT (LEAF DIMENSION) = 90"

Clear Opening Between Couplers



The dimensions provided for the D3500 Single Swing Door are the same dimensions required for the D3503 Single Swing Door.

32" CLEAR OPENING

CLEAR OPENING = 40.0625" – 8.0625" = 32"

MINIMUM DOOR DIMENSION = 40.0625"

CLEAR OPENING = DOOR DIMENSION – 8.0625"

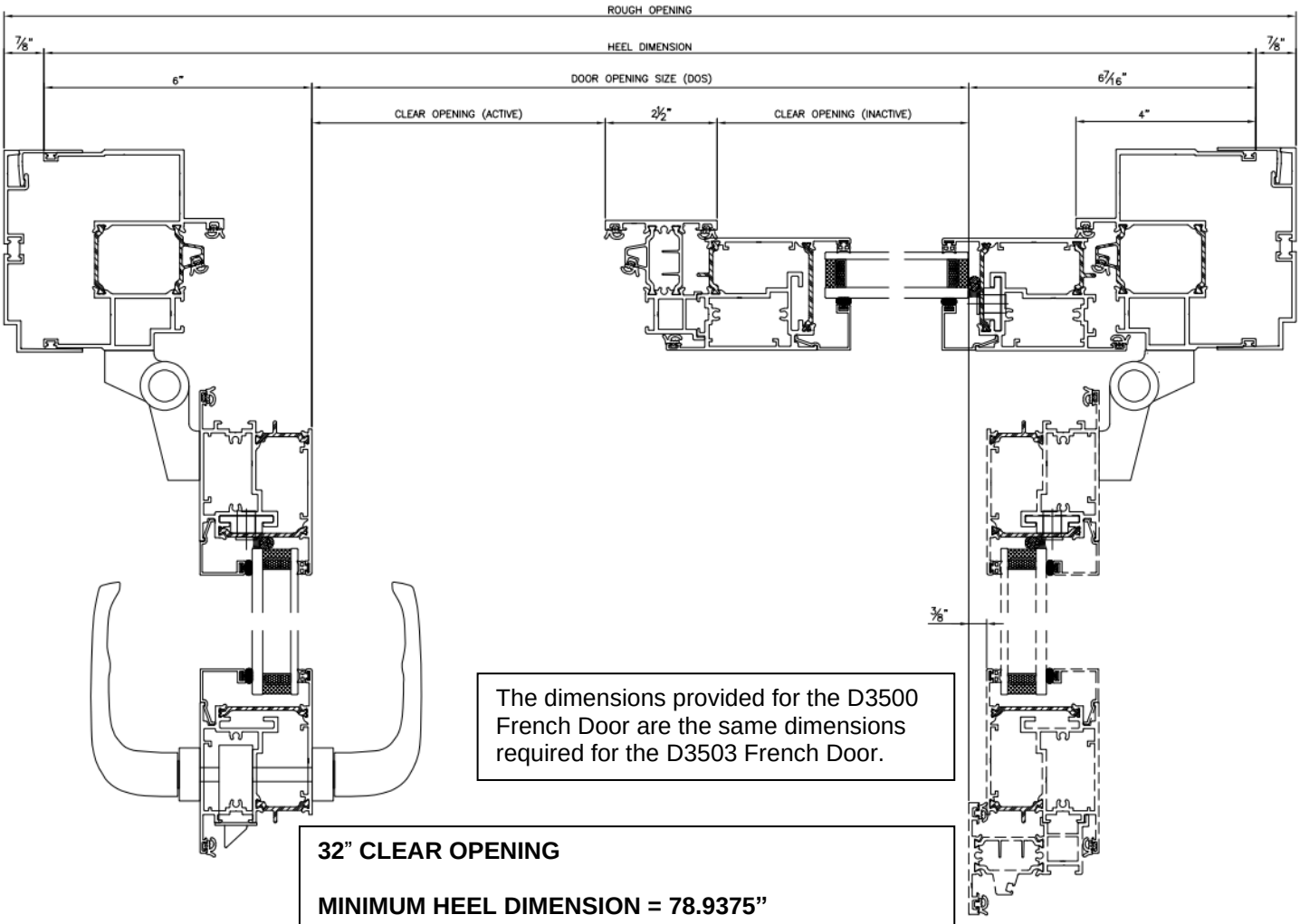
STARLINE WINDOWS IS NOT RESPONSIBLE FOR DETERMINING THE CLEAR OPENING IN ANY JURISDICTION. IT IS UP TO THE PROJECT CONSULTANT(S) TO CONFIRM THE C.O. REQUIREMENT FOR ADA AND ACCESSIBLE SUITES AS IT CAN VARY FROM A 32" TO 34" C.O. DEPENDING ON THE JURISDICTION.

LIMITATION OF SINGLE SWING DOORS:

- MAX. WIDTH (LEAF DIMENSION) = 44"
- MAX. HEIGHT (LEAF DIMENSION) = 90"

Series D3500 – French Door Clear Openings

Clear Opening Between Jambs (Equal Leafs)



The dimensions provided for the D3500 French Door are the same dimensions required for the D3503 French Door.

32" CLEAR OPENING

MINIMUM HEEL DIMENSION = 78.9375"

CLEAR OPENING (active) = $\frac{(78.9375" - 14.9375")}{2} = 32"$

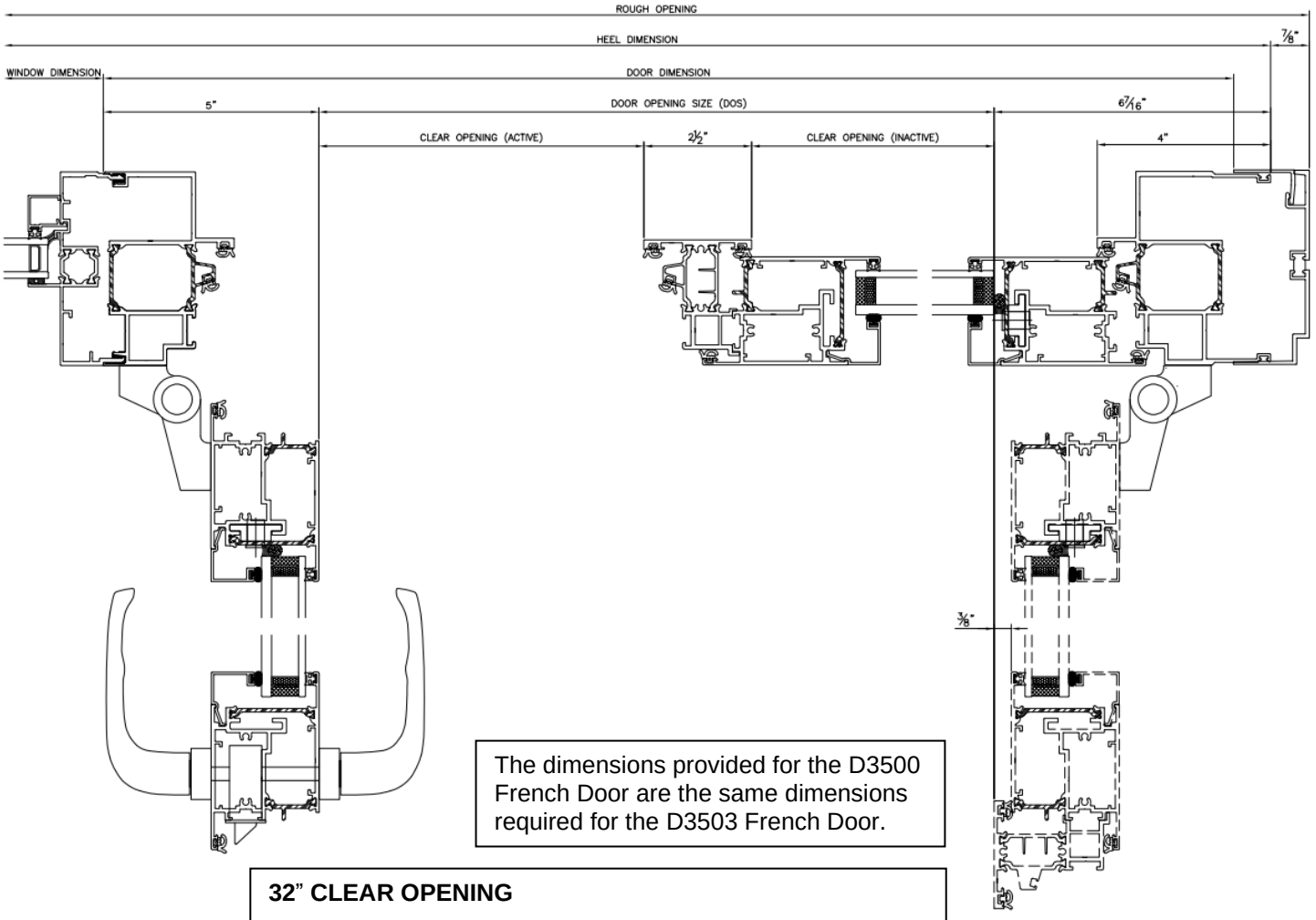
CLEAR OPENING (active) = $\frac{(\text{HEEL DIMENSION} - 14.9375")}{2}$

STARLINE WINDOWS IS NOT RESPONSIBLE FOR DETERMINING THE CLEAR OPENING IN ANY JURISDICTION. IT IS UP TO THE PROJECT CONSULTANT(S) TO CONFIRM THE C.O. REQUIREMENT FOR ADA AND ACCESSIBLE SUITES AS IT CAN VARY FROM A 32" TO 34" C.O. DEPENDING ON THE JURISDICTION.

LIMITATION OF FRENCH SWING DOORS:

- MAX. WIDTH (LEAF DIMENSION) = 80" (BOTH LEAFS)
- MAX. HEIGHT (LEAF DIMENSION) = 90"

Clear Opening Between Jambs and Coupler (Equal Leafs)



The dimensions provided for the D3500 French Door are the same dimensions required for the D3503 French Door.

32" CLEAR OPENING

MINIMUM DOOR DIMENSION = 77.9375"

CLEAR OPENING (active) = $\frac{(77.9375" - 13.9375")}{2}$ = 32"

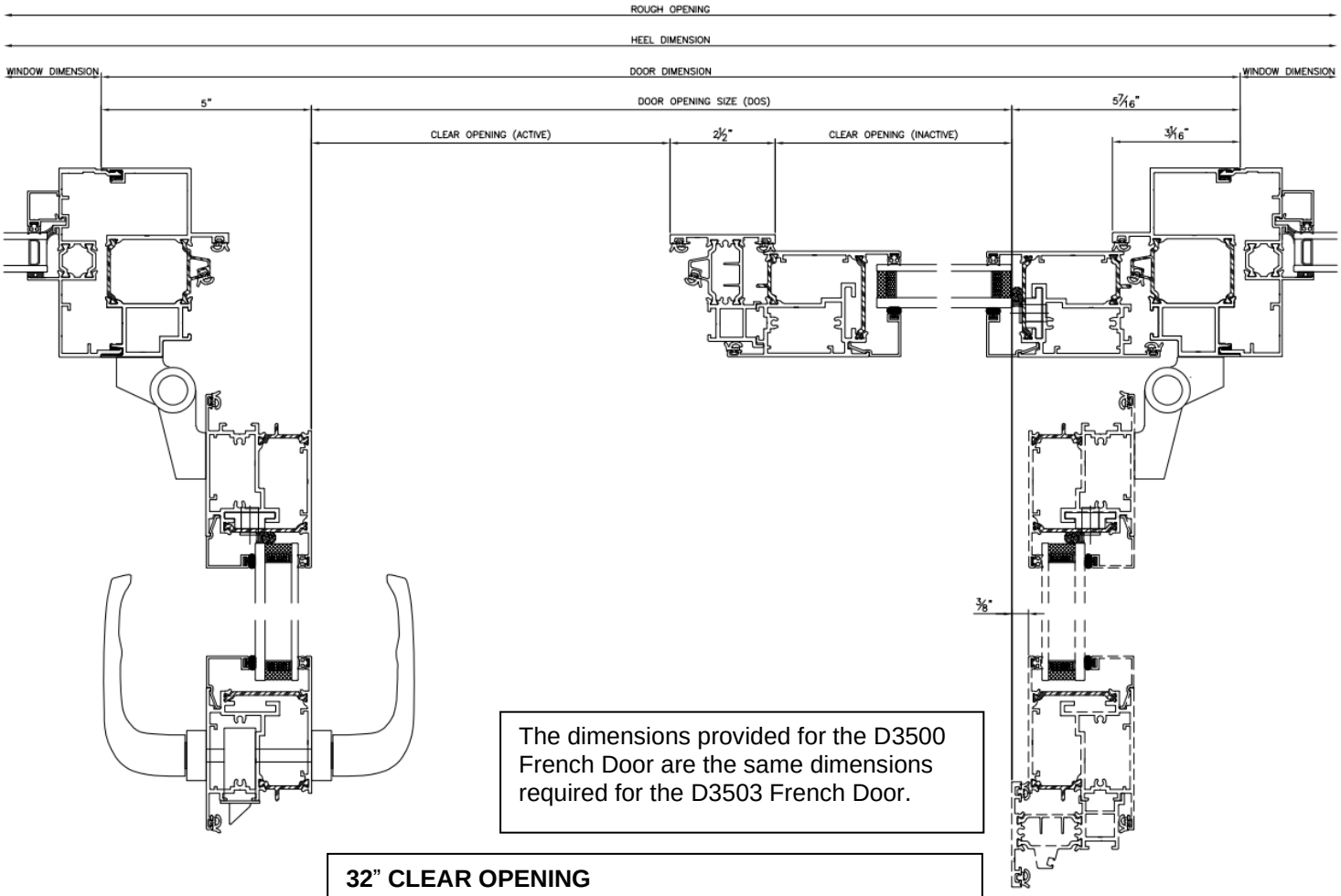
CLEAR OPENING (active) = $\frac{(\text{DOOR DIMENSION} - 13.9375")}{2}$

STARLINE WINDOWS IS NOT RESPONSIBLE FOR DETERMINING THE CLEAR OPENING IN ANY JURISDICTION. IT IS UP TO THE PROJECT CONSULTANT(S) TO CONFIRM THE C.O. REQUIREMENT FOR ADA AND ACCESSIBLE SUITES AS IT CAN VARY FROM A 32" TO 34" C.O. DEPENDING ON THE JURISDICTION.

LIMITATION OF FRENCH SWING DOORS:

- MAX. WIDTH (LEAF DIMENSION) = 80" (BOTH LEAFS)
- MAX. HEIGHT (LEAF DIMENSION) = 90"

Clear Opening Between Couplers (Equal Leafs)



The dimensions provided for the D3500 French Door are the same dimensions required for the D3503 French Door.

32" CLEAR OPENING

MINIMUM DOOR DIMENSION = 74.4375"

CLEAR OPENING (active) = $\frac{(74.4375" - 10.4375")}{2}$ = 32"

CLEAR OPENING (active) = $\frac{(\text{DOOR DIMENSION} - 10.4375")}{2}$

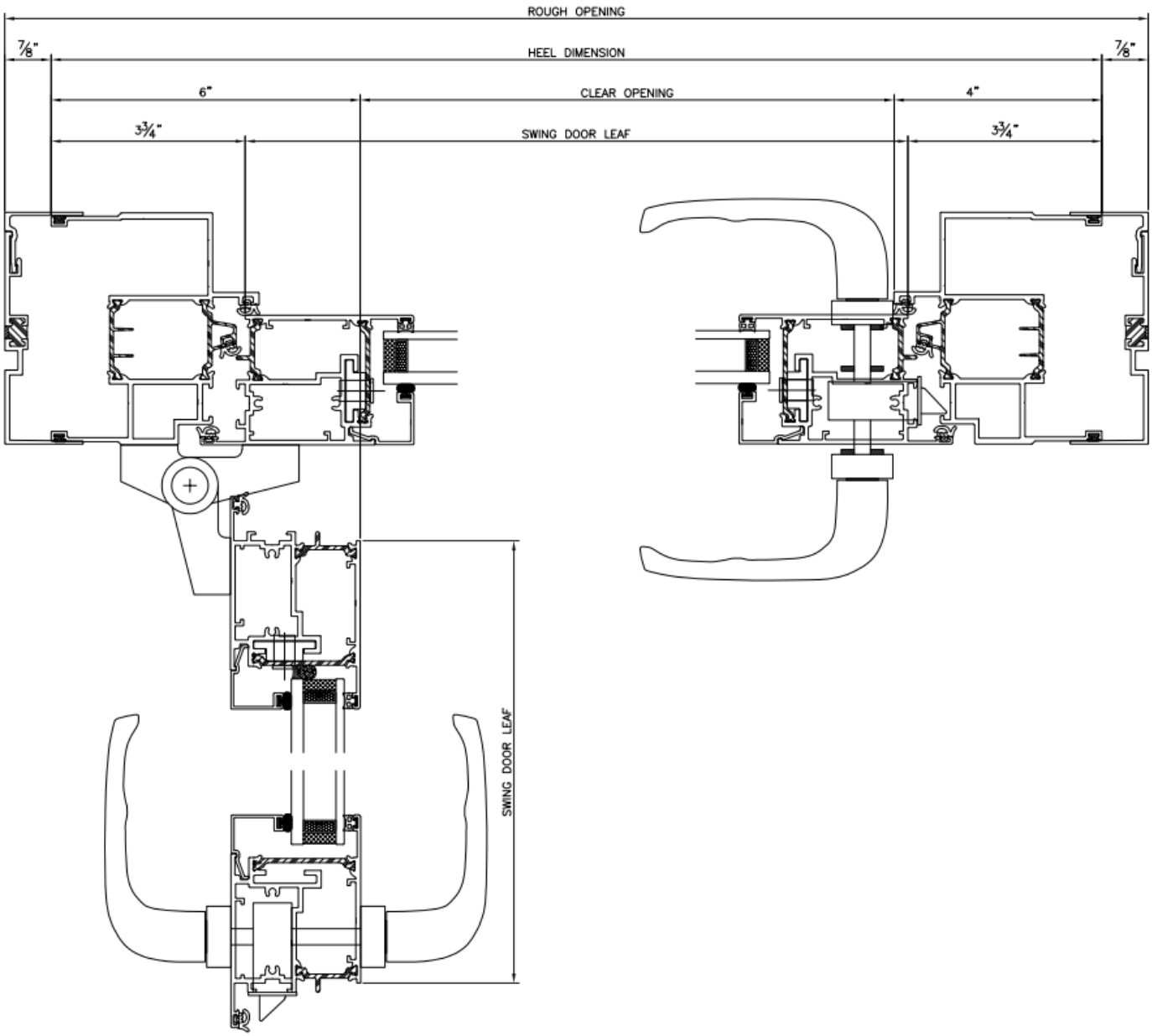
STARLINE WINDOWS IS NOT RESPONSIBLE FOR DETERMINING THE CLEAR OPENING IN ANY JURISDICTION. IT IS UP TO THE PROJECT CONSULTANT(S) TO CONFIRM THE C.O. REQUIREMENT FOR ADA AND ACCESSIBLE SUITES AS IT CAN VARY FROM A 32" TO 34" C.O. DEPENDING ON THE JURISDICTION.

LIMITATION OF FRENCH SWING DOORS:

- MAX. WIDTH (LEAF DIMENSION) = 80" (BOTH LEAFS)
- MAX. HEIGHT (LEAF DIMENSION) = 90"

Series D3500 – Leaf Dimensions

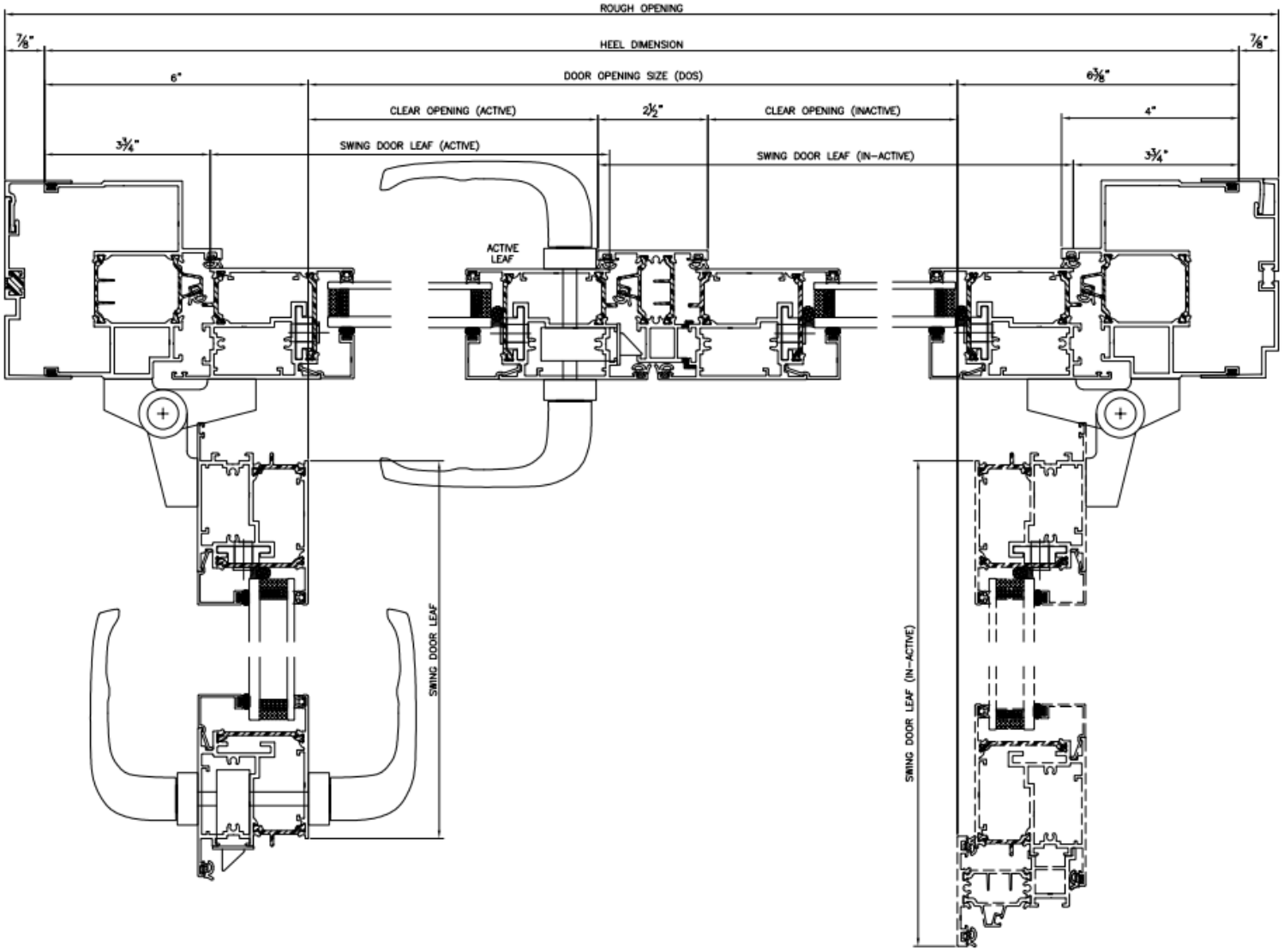
Leaf Dimensions for a Single Swing Door



HEEL DIMENSION = SWING DOOR LEAF + 7 1/2”

The leaf dimensions provided for the D3500 Single Swing Door are the same dimensions for the D3503 Single Swing Door.

Leaf Dimension for French Door



HEEL DIMENSION = SWING DOOR LEAF (ACTIVE) + SWING DOOR LEAF (IN-ACTIVE) + 7 3/4”

The leaf dimensions provided for the D3500 French Door are the same dimensions for the D3503 French Door.

Product Specification 08 13 16 – Outswing Aluminum Framed Glass Doors

Note: Bolded text in this specification are options that are highlighted for the specifier to select or to list requirements.

Part 1 - General

A high-quality thermally broken aluminum balcony outswing door designed for residential high-rise construction.

1.1 Summary

A. Section Includes: Aluminum Doors (Outswing Aluminum-Framed Glass Door)

1. Aluminum framed outswing balcony door shall be Starline's **D3500 or D3600 Series double glazed thermally enhanced outswing door and/or D3503 or D3603 Series triple glazed thermally enhanced outswing door** manufactured by Starline Windows with seismic jambs and a deflection header. (Specifier to select).
2. Work included: Furnish labor, material and other services to complete the fabrication and installation of the doors, including all materials and fitments required for the operation of the units in the manner, direction and performance shown on the shop drawings and specified herein.

   Work not included: Structural support of door framing, interior trims. **(Specifier list others).**

   Related work specified elsewhere: **(Specifier to list).**

B. Related Sections: **(Specifier to select the following related sections)**

1. 07 27 00 – Air Barriers
2. 07 60 00 – Flashing and Trim
3. 07 92 00 – Joint Sealants
4. 08 32 13 – Sliding Aluminum-Framed Glass Door
5. 08 44 13 – Glazed Aluminum Curtain Wall
6. 08 46 13 – Glazed Aluminum Window Wall
7. 08 51 13 – Aluminum Windows
8. 08 80 00 – Glazing

1.2 Quality Assurance

A. Drawings and specifications for Work of this Section are based upon the Series **D3500 and/or D3503** Outswing Balcony Door manufactured by Starline Windows. Whenever alternative products are offered, submit supporting technical literature, samples, drawings and performance data for comparison 10 days prior to closing date. Test reports must be made available on request. **(Specifier to select)**

B. Doors shall be tested and conform to the AAMA/WDMA/CSA 101 I.S.2/A440-017 & CSA A440S1-17 requirements.

C. Manufacturer Qualifications:

1. Manufacturer to have a minimum 10 years of documented experience.
2. Manufacturer capable of providing an aluminum-framed outswing door system that meet or exceed the performance requirements indicated.
3. Manufacturer capable of providing field representation during door installation.

D. Installer Qualifications: Installer performing the Work in this Section to have a minimum of 3 years documented experience and approved by the manufacturer.

E. Mock-Up: If requested by Consultant, a mock up is to be provided and installed at project site. Mock-up to include acceptable products and manufacturer approved installation methods. Obtain Owner's and Consultant's acceptance of finish color, and workmanship standard.

1.3 Structural requirements

A. Structural performance shall be based on CSA Standard CSA S157-05 "Strength Design in Aluminum".

B. Limit mullion deflection to L/175.

C. Allow for deflection of building structure. Aluminum door frames with deflection channel and seismic jambs shall be designed, fabricated and installed to withstand slab edge vertical differential deflections of maximum 3/4"[1] and seismic inter-story lateral drift movements of elastic +/- 3/4"[1] without significant damage to the fenestration system or in-elastic +/- 2 1/2"[1] with significant damage expected but framing to be designed to remain anchored to the structure.

[1] Note to specifier: Values may change based on the configuration of the doors. Values to be specified by a Professional Engineer.

1.4 Test and Performance Requirements

Specifier to select from the following performance requirements.

A. Doors shall meet performance class **LC-PG30**[1] when tested to AAMA/WDMA/CSA 101 I.S.2/A440-017 & CSA A440S1-17:

1. Air Infiltration: Swing door air infiltration shall not exceed 0.01 cfm/ft^2 (A3) when tested in accordance with ASTM E 283 with a pressure difference of 1.57 psf / 75 Pa.
2. Water Penetration Resistance:
   i. There shall be no water infiltration for doors when tested in accordance with ASTM E547 with a pressure difference of 15.04 psf / 720 Pa (Laboratory Test).
   ii. There shall be no water infiltration for doors when tested in accordance with AAMA 502-08 with a pressure difference up to a maximum of 10.4 psf / 500 Pa (Field Test) [2]
3. Uniform Load Deflection Test: The deflection of door shall not exceed L/175 and there shall be no permanent set when tested in accordance with ASTM E330 with a design pressure of 30 psf / 1440 Pa, positive and negative.
4. Uniform Load Structural Test: There shall be no damage to hardware, accessories, fasteners, or any other damage that would render the door inoperable when tested in accordance with ASTM E330 with a structural test pressure of 45.11 psf / 2160 Pa, positive and negative.
5. Forced Entry Resistance: Door shall Pass when tested to ASTM 1304.

6. Thermal Performance[3]

   i. U-value: The maximum door thermal transmittance U-value shall be **0.39 BTU/ hr*ft^2*°F (2.20 W/m^2*K) for double glazed Series D3500 and / or 0.35 BTU/ hr*ft^2*°F (1.97 W/m^2*k) for triple glazed Series D3503** when tested in accordance with AAMA 1503.1 and CAN/CSA-A440.2. Door shall be tested and labeled to N.F.R.C. standard 100 & 200.

   ii. Solar Heat Gain Coefficient: A **(maximum or minimum) of 0.25 for double glazed Series D3500 and / or 0.23 for triple glazed Series D3503.**

   iii. Visible Light Transmittance: A **(maximum or minimum) of 0.42 for double glazed Series D3500 and / or 0.38 for triple glazed Series D3503**.

[1] Note to specifier: Performance class result is based on lab testing and will vary by configuration and glass type. Contact Starline Windows for information on how the product can be engineered to achieve higher performance class than specified above.

[2] Note to specifier: 500Pa / 10.4 psf is the maximum field test result that can be achieved. The water penetration resistance field tests follow the criteria and testing procedures as outlined in the AAMA 502-08 specification standard.

[3] Note to specifier: Thermal performance depends on glass specified. For double glazed Series D3500 values the above test was preformed using 26mm double glazed insulated glass unit (6mm/Argon/4mm) with standard high performance soft coat (sputtered) Low E which is applied to surface #2, air filled with warm edge spacer bar. For triple glazed Series D3503 values the above test was performed using 46mm triple glazed insulated glass unit (6mm/Argon/4mm/Argon/4mm) with standard high performance soft coat (sputtered) Low E which is applied to surface #2, 90% argon + 10% air fill, with warm edge spacer bar. Please note: A second low E coating can be applied to surface #4 to further increase the thermal performance. For both double and triple glazed the NFRC door test size was 37 3/4” x 82 3/8” (960mm x 2090mm).

1.5 Submittals

A. Product Data: Submit complete product data on system being used.

B. Shop Drawings: Submit complete shop drawings which include floor plans, elevations, door schedule, and product components including anchorage, fasteners, accessories and finish colour.

C. Samples: Submit glass and frame colour(s) samples.

D. Close-out Submittals:

   1. Warranty: Submit executed Manufacturer’s warranty which provides a guarantee for the complete installation provided under this section against defective material and workmanship which appears within a period of two years from the date of substantial completion.

   2. Project Record Documents: Submit operation and maintenance data for installed product in accordance with General Conditions

1.6 Project Conditions

A. Field Measurements: Verify actual measurements / openings by field measurements prior to fabrication, until it is agreed upon in writing between the Door Manufacturer and the General Contractor that floors become “typical”. Once typical the doors can be ordered off the previous field measurements.

B. Indicate field measurements on shop drawings.

Part 2 – Products

2.1 Manufacturers

A. Acceptable Manufacturers: Starline Windows

1. Aluminum Door (Outswing Aluminum-Framed Glass Door): **Series D3500 and / or Series D3503.**

B. Substitutions: Approved alternates

2.2 Material

A. Aluminum Extrusion: 4 1/2" deep perimeter frame member. Frame member and intermediate bars are extruded from aluminum sections of 6063 alloy, T5 temper with a minimum thickness of 0.064”.

B. Fasteners: Stainless steel and of sufficient size and quantity to perform their intended function.

C. Glazing Gaskets: Extruded Santoprene or EPDM

D. Glass Setting Blocks & Edge Blocks: FPVC, Neoprene, EPDM, Santoprene or silicone with an 80 to 90 ± Shore A durometer hardness. Block material shall be compatible with sealed unit edge sealant. Setting blocks for sealed units with silicone edge seals must be silicone.

E. Glazing bead: Extruded aluminum and glazed from the outside.

F. Thermal break: Polyamide.

2.3 Fabrication

A. Fabricate framing from extrusions of size and shape shown on shop drawings.

B. Interior and exterior extruded aluminum framing sections shall be integrated with a Polyamide thermal break to form a rigid composite assembly without the use of fasteners or other thermal bridging elements. Dry shrinkage of polyamide thermal break shall not exceed 0.10% of the framing member length.

C. Main framing extrusions shall be butt corner construction and door leaf mitre except at 10” kick plate.

D. All framing profiles shall be straight and free of deformations and defects.

E. Joints shall be accurately machined, fitted and sealed.

F. Coupling mullions shall be designed to provide a functional split to permit modular construction and allow for thermal expansion.

G. Perimeter frame shall be 4 1/2” deep for the D3500 and 6” deep for the D3600 with a minimum wall thickness of .064" (1.60mm) and be thermally broken.

H. Door stiles shall be 2 1/2" deep and shall have a minimum wall thickness of .091" (2.25mm) and be thermally broken.

I. All frame corners are mechanically joined by stainless steel screws.

J. All interior joints and interior screw heads shall be sealed with a non-hardening sealant or gasketed.

K. Frame and door leaf shall have an EPDM weather seal.

L. All glazing pockets shall be vented, pressure equalized, and drained to the vertical extrusions.

M. Glass bead shall be aluminum and a snap-in screw less type at the fixed lite and door leaf.

2.4 Glazing[1, 2]

A. Double glazed, double seal insulated glass unit with an overall thickness of 1” (26 mm). Series D3503 triple glazed available (Refer to 2.7.A.1 of this specification).

B. Standard high performance soft coat (sputtered) Low E applied to surface #2.

C. Black warm edge spacer with argon fill.

D. Minimum glass thickness shall be 4mm. Glass thickness and quality shall conform to the requirements of the U.S.A. and Canadian Code for commercial construction, current edition.

E. Glass shall be tempered and/or laminated.

F. Glazing shall be installed at the factory before shipping to site.

[1] Note to specifier: Glazing noted above is based on Starline Windows Ltd. standard product offering. There are various other options available. Refer to 2.7.A of this specification.

[2] Note to specifier: Ensure 1.4.A.6 Thermal Performance values selected correspond with whether double and / or triple glazing is selected.

2.5 Hardware[1]

A. Hardware shall be furnished by the door manufacturer.

B. All hardware fittings shall be installed at the factory before shipping to site.

C. Hardware shall be as follows:

1. Deadbolt/Cylinder with interior thumb-turn, single point lock (Note: keyed locks are not available).
2. Two 1/2" x 4" lever handles (one for exterior, one for interior). Handles are available in brush chrome finish.
3. Hinges - 2 or 3 surface mounted pivot hinges - Hinge comes in door leaf finish only.
4. Overhead holders (Stay arm) in stainless steel.

2.6 Finishes (Powder Coating)

A. All exposed surfaces of aluminum door and framing members shall be free of scratches and other serious surface blemishes.

B. Finishes[1].

1. **Thermoset coating specifically designed for architectural systems. Coating to comply with AAMA 2603 specification** and/or
2. **Upgrade to a thermoset super durable coating which complies with the AAMA 2604 specification standards. The AAMA 2604 standard demands advanced levels of weather resistance, gloss and colour retention, and corrosion resistance, among other increased standards when compared to the AAMA 2603 specification standard.**
3. **Upgrade to a thermoset fluorocarbon coating specifically designed for architectural systems. Coating to comply with the AAMA 2605 specification which demands advanced levels of weather resistance, gloss and colour retention, and corrosion resistance, among other increased standards when compared to the AAMA 2603 and 2604 specification**.

C. Colour Options[2].

1. Standard colours are as follows. (**Specifier to select from the standard colour(s) listed below)**. These standard colours are **available in the AAMA 2603, AAMA 2604 and AAMA 2605 specification standards**.

White	**Black**	**Brown**	**Silver[3]**	**Charcoal Grey**

2. Semi-standard colours[4] are as follows. (**Specifier to select from the semi-standard colour(s) listed below)**. These semi-standard colours are **available in the AAMA 2603, AAMA 2604 and AAMA 2605 specification standards**.

Graphite Grey	**Grey Velvet**	**Iron Mountain Grey**	**Metal Shavings Grey**
Black Charcoal	**Kendall Charcoal**	**Beige**	

[1] Note to Specifier: Select 2.6.B.1 and/or 2.6.B.2 and/or 2.6.B.3. Option to have dual frame colour and / or AAMA 2603 coating on interior and AAMA 2604 or AAMA 2605 coating on exterior is available, if standard and / or semi-standard and / or custom colour is selected. Refer to **2.7.J.1** of this specification.

[2] Note to Specifier: Refer to **2.7.J.2** of this specification for Custom Colours.

[3] Note to Specifier: Silver is available for an additional cost.

[4] Note to Specifier: Semi-standard colours are available for an additional cost. May require up to a 4-week lead time.

2.7 Optional Items (Specifier to select from the following options)

A. Glazing
   1. Triple glazed 1 13/16” (46mm) IGU with black warm edge spacer bar with air fill. (Series D3503)
   2. Varying glass thickness available in 4mm and greater (**Specifier to select glass thickness**).
   3. Tinted, obscured & reflective glass
   4. Laminated glass

B. Sandwich panels

C. Deflection channel

D. Coupling mullions – Wide range of couplers are available (all thermally broken) to suite a variety of configurations i.e.: 90°, 135°, 180°, etc.

E. Side lites

F. Transoms

G. 10” kick plate (Standard for all ADA)

H. Thresholds
   1. ½” Accessible (ADA) threshold
   2. 1 ¾” Accessible (ADA) threshold (500Pa)

I. Finishes (Powder Coating)
   1. Dual frame color – 1 color on exterior and 1 color on interior (refer to **2.6.C** for color options)
      i. Finish to comply with AAMA 2603 standard on both interior and exterior.
      ii. Finish to comply with AAMA 2604 standard on both interior and exterior.
      iii. Finish to comply with AAMA 2605 standard on both interior and exterior.

iv. Finishes to comply with AAMA 2603 standard on interior and AAMA 2604 standard on exterior.

v. Finishes to comply with AAMA 2603 standard on interior and AAMA 2605 standard on exterior.

2. Custom colours[2]. (Specifier to state custom colour) Virtually any colour can be matched or very closely matched. The scope of work and overall custom colour quantity will be reviewed by Starline on a project specific basis to determine the feasibility of the custom colour request.

[1] Note to Specifier: Insect Screens are not available through Starline Windows Ltd.

[2] Note to Specifier: Custom colours are available for an additional cost premium. An approximate 12-week lead time is required to procure custom colour requests.

Part 3 - Execution

3.1 Examination

A. Installer to examine openings, structural support, substrates and any other conditions that would affect the installation, for compliance with manufacturer's instructions.

B. Verify rough opening dimensions.

C. Verify sill is within tolerance of levelness to ensure adequate shimming to obtain proper drainage.

3.2 Installation

A. Install manufacturer's system in accordance with manufacturer's approved shop drawings.

B. Doors shall be installed and adjusted by experienced personnel in accordance with the manufacturer instructions and approved shop drawings.

C. All items in this section shall be set in their correct location and shall be set level, square, plumb and at proper elevations and in alignment with other work.

D. The doors are installed at site with a maximum variance to plumb of +/- 0.25%. (+/- 1/4" / 96").

3.3 Field Quality and Control

A. Manufacturer's Field Services: Upon Owner and/or Consultants written request, provide manufacturer's field service representative for site visit to inspect installation and to ensure accordance with manufacturer's instruction and approved shop drawings.

B. Field Tests: Owner and/or Consultant may choose to conduct tests for water penetration and air infiltration.

1. Testing Standard per AAMA 502.
2. Field testing shall be performed by a qualified independent testing agency.
3. Field testing should not occur until the door has been installed and the caulking is cured. Ensure the products used to complete the building envelope tie in (membrane, caulking, flashing, cladding, etc.) are installed complete and have cured.

3.4 Protection and Cleaning

A. Protection:

1. Doors shall be protected with blue poly during and after installation until acceptance by the General Contractor. Thereafter, it shall be the responsibility of the General Contractor to protect the installed product from construction damage.
2. Doors shall be isolated from concrete, mortar, plaster and dissimilar metals with bituminous paint or other isolation coatings.

B. Cleaning: It shall be the responsibility of the General Contractor to maintain protection and provide final cleaning.

Note: This specification is intended to be used by a qualified Specifier and will require modifications for the project specific requirements. This specification is not intended to be use verbatim as the project specific specification.

Laws, building and safety codes governing the design and use of this product vary widely. Starline Windows does not control the selection and use of this product and assumes no responsibility therefor.

Series D3500 & D3503 NFRC Product Energy Chart

DOUBLE / TRIPLE (26mm / 46mm IGU)	GLAZING (Ext/Gap/Int)	U VALUE (W/M²k)	U VALUE (Btu/hft²F)	Shading Coefficient	Solar Heat Gain Coefficient	Visible Light Transmittance	CPD (Certified Product Directory)
Center of Glass (COG)	6mm SB60 (#2) / 4mm Clear	1.45	0.26	0.44	0.39	0.71	
	6mm SB67* (#2) / 4mm Clear	1.45	0.26	0.33	0.29	0.54	
	6mm SN68 (#2) / 4mm Clear	1.48	0.26	0.43	0.37	0.68	
	6mm SN68 (#2) / 4mm IS20* (#4)	1.20	0.21	0.42	0.36	0.66	
	6mm SNR50* (#2) / 4mm Clear	1.44	0.25	0.28	0.24	0.48	
	6mm SNX51/23* (#2) / 4mm Clear	1.41	0.25	0.26	0.22	0.51	
	6mm SNX62/27* (#2) / 4mm Clear	1.41	0.25	0.30	0.26	0.62	
	6mm SB60 (#2) / 4mm Clear / 4mm Clear	1.06	0.19	0.41	0.35	0.64	
	6mm SB60 (#2) / 4mm SB60 (#4) / 4mm Clear	0.70	0.12	0.36	0.31	0.57	
	6mm SB67* (#2) / 4mm Clear / 4mm Clear	1.06	0.19	0.30	0.26	0.49	
	6mm SN68 (#2) / 4mm Clear / 4mm Clear	1.07	0.19	0.39	0.34	0.62	
	6mm SN68 (#2) / 4mm RLE70/36 (#4) / 4mm Clear	0.70	0.12	0.34	0.30	0.53	
	6mm SNR50* (#2) / 4mm Clear / 4mm Clear	1.06	0.19	0.26	0.22	0.44	
	6mm SNX51/23* (#2) / 4mm Clear / 4mm Clear	1.04	0.18	0.23	0.20	0.46	
	6mm SNX62/27* (#2) / 4mm Clear / 4mm Clear	1.04	0.18	0.27	0.24	0.56	
D3500 D3503 Swing Door (Standard)	6mm SB60 (#2) / 4mm Clear	2.20	0.39	0.28	0.24	0.42	STL-A-55-00170-00001
	6mm SB67* (#2) / 4mm Clear	2.20	0.39	0.21	0.18	0.32	STL-A-55-00173-00001
	6mm SN68 (#2) / 4mm Clear	2.21	0.39	0.27	0.23	0.40	STL-A-55-00267-00001
	6mm SN68 (#2) / 4mm IS20* (#4)	2.03	0.36	0.26	0.22	0.39	STL-A-55-00169-00001
	6mm SNR50* (#2) / 4mm Clear	2.20	0.39	0.18	0.15	0.28	STL-A-55-00174-00001
	6mm SNX51/23* (#2) / 4mm Clear	2.19	0.39	0.17	0.14	0.30	STL-A-55-00175-00001
	6mm SNX62/27* (#2) / 4mm Clear	2.19	0.38	0.19	0.16	0.37	STL-A-55-00176-00001
	6mm SB60 (#2) / 4mm Clear / 4mm Clear	1.97	0.35	0.26	0.22	0.38	STL-A-55-00210-00001
	6mm SB60 (#2) / 4mm SB60 (#4) / 4mm Clear	1.76	0.31	0.22	0.19	0.34	STL-A-55-00211-00001
	6mm SB67* (#2) / 4mm Clear / 4mm Clear	1.97	0.35	0.19	0.16	0.29	STL-A-55-00213-00001
	6mm SN68 (#2) / 4mm Clear / 4mm Clear	1.97	0.35	0.25	0.21	0.36	STL-A-55-00207-00001
	6mm SN68 (#2) / 4mm RLE70/36 (#4) / 4mm Clear	1.76	0.31	0.21	0.18	0.31	STL-A-55-00208-00001
	6mm SNR50* (#2) / 4mm Clear / 4mm Clear	1.96	0.35	0.17	0.14	0.26	STL-A-55-00214-00001
	6mm SNX51/23* (#2) / 4mm Clear / 4mm Clear	1.96	0.35	0.16	0.13	0.27	STL-A-55-00215-00001
	6mm SNX62/27* (#2) / 4mm Clear / 4mm Clear	1.96	0.35	0.18	0.15	0.33	STL-A-55-00216-00001

Email any project-specific enquiries to architectural@starlinewindows.com or technical@starlinewindows.com

D3500 **D3503** **Swing Door (Enhanced)**	6mm SB60 (#2) / 4mm Clear	1.66	0.29	0.27	0.24	0.42	STL-A-55-00034-00001
	6mm SB67* (#2) / 4mm Clear	1.66	0.29	0.20	0.18	0.32	STL-A-55-00037-00001
	6mm SN68 (#2) / 4mm Clear	1.67	0.29	0.26	0.23	0.40	STL-A-55-00131-00001
	6mm SN68 (#2) / 4mm IS20* (#4)	1.49	0.26	0.26	0.22	0.39	STL-A-55-00033-00001
	6mm SNR50* (#2) / 4mm Clear	1.65	0.29	0.18	0.15	0.28	STL-A-55-00038-00001
	6mm SNX51/23* (#2) / 4mm Clear	1.64	0.29	0.16	0.14	0.30	STL-A-55-00039-00001
	6mm SNX62/27* (#2) / 4mm Clear	1.64	0.29	0.19	0.16	0.37	STL-A-55-00040-00001
	6mm SB60 (#2) / 4mm Clear / 4mm Clear	1.43	0.25	0.25	0.22	0.38	STL-A-55-00074-00001
	6mm SB60 (#2) / 4mm SB60 (#4) / 4mm Clear	1.21	0.21	0.22	0.19	0.34	STL-A-55-00075-00001
	6mm SB67* (#2) / 4mm Clear / 4mm Clear	1.43	0.25	0.19	0.16	0.29	STL-A-55-00077-00001
	6mm SN68 (#2) / 4mm Clear / 4mm Clear	1.43	0.25	0.24	0.21	0.36	STL-A-55-00071-00001
	6mm SN68 (#2) / 4mm RLE70/36 (#4) / 4mm Clear	1.22	0.21	0.21	0.18	0.31	STL-A-55-00072-00001
	6mm SNR50* (#2) / 4mm Clear / 4mm Clear	1.43	0.25	0.16	0.14	0.26	STL-A-55-00078-00001
	6mm SNX51/23* (#2) / 4mm Clear / 4mm Clear	1.42	0.25	0.15	0.13	0.27	STL-A-55-00079-00001
	6mm SNX62/27* (#2) / 4mm Clear / 4mm Clear	1.42	0.25	0.17	0.15	0.33	STL-A-55-00080-00001

I.G.U. **(Insulated Glass Unit)**	**GLASS**	**WARM EDGE SPACER**	**GAS FILL**
	Guardian IS20*, RLE70/36, SN68, SNR50*, SNX51/23*, SNX62/27*, Vitro SB60, SB67*	DG - 15.6mm (5/8") TG - 2 x 15.6mm (5/8")	90% Argon & 10% Air

Based on NFRC CPD - Certification Date: May 2023 Expiration Date: August 2027

Fenestration = Frame, mullions, sash and vision glass. Refer to www.nfrc.org for more information.

*** Available at a cost premium.**

Prepared by Kurt Leano, NFRC Certified Simulator

Series D3600 & D3603 NFRC Product Energy Chart

DOUBLE / TRIPLE (26mm / 46mm IGU)	GLAZING (Ext/Gap/Int)	U VALUE (W/M^2k)	U VALUE (Btu/hft^2F)	Shading Coefficient	Solar Heat Gain Coefficient	Visible Light Transmittance	CPD (Certified Product Directory)
Center of Glass (COG)	6mm SB60 (#2) / 4mm Clear	1.45	0.26	0.44	0.39	0.71	
	6mm SB67* (#2) / 4mm Clear	1.45	0.26	0.33	0.29	0.54	
	6mm SN68 (#2) / 4mm Clear	1.48	0.26	0.43	0.37	0.68	
	6mm SN68 (#2) / 4mm IS20* (#4)	1.20	0.21	0.42	0.36	0.66	
	6mm SNR50* (#2) / 4mm Clear	1.44	0.25	0.28	0.24	0.48	
	6mm SNX51/23* (#2) / 4mm Clear	1.41	0.25	0.26	0.22	0.51	
	6mm SNX62/27* (#2) / 4mm Clear	1.41	0.25	0.30	0.26	0.62	
	6mm SB60 (#2) / 4mm Clear / 4mm Clear	1.06	0.19	0.41	0.35	0.64	
	6mm SB60 (#2) / 4mm SB60 (#4) / 4mm Clear	0.70	0.12	0.36	0.31	0.57	
	6mm SB67* (#2) / 4mm Clear / 4mm Clear	1.06	0.19	0.30	0.26	0.49	
	6mm SN68 (#2) / 4mm Clear / 4mm Clear	1.07	0.19	0.39	0.34	0.62	
	6mm SN68 (#2) / 4mm RLE70/36 (#4) / 4mm Clear	0.70	0.12	0.34	0.30	0.53	
	6mm SNR50* (#2) / 4mm Clear / 4mm Clear	1.06	0.19	0.26	0.22	0.44	
	6mm SNX51/23* (#2) / 4mm Clear / 4mm Clear	1.04	0.18	0.23	0.20	0.46	
	6mm SNX62/27* (#2) / 4mm Clear / 4mm Clear	1.04	0.18	0.27	0.24	0.56	
D3600 D3603 Swing Door (Standard)	6mm SB60 (#2) / 4mm Clear	2.25	0.40	0.28	0.24	0.42	STL-A-55-00490-00001
	6mm SB67* (#2) / 4mm Clear	2.25	0.40	0.21	0.18	0.32	STL-A-55-00493-00001
	6mm SN68 (#2) / 4mm Clear	2.25	0.40	0.27	0.23	0.40	STL-A-55-00587-00001
	6mm SN68 (#2) / 4mm IS20* (#4)	2.09	0.37	0.26	0.22	0.39	STL-A-55-00489-00001
	6mm SNR50* (#2) / 4mm Clear	2.25	0.40	0.18	0.15	0.28	STL-A-55-00494-00001
	6mm SNX51/23* (#2) / 4mm Clear	2.24	0.39	0.17	0.14	0.30	STL-A-55-00495-00001
	6mm SNX62/27* (#2) / 4mm Clear	2.24	0.39	0.19	0.16	0.37	STL-A-55-00496-00001
	6mm SB60 (#2) / 4mm Clear / 4mm Clear	2.02	0.36	0.26	0.22	0.38	STL-A-55-00530-00001
	6mm SB60 (#2) / 4mm SB60 (#4) / 4mm Clear	1.81	0.32	0.22	0.19	0.34	STL-A-55-00531-00001
	6mm SB67* (#2) / 4mm Clear / 4mm Clear	2.02	0.36	0.19	0.16	0.29	STL-A-55-00533-00001
	6mm SN68 (#2) / 4mm Clear / 4mm Clear	2.02	0.36	0.25	0.21	0.36	STL-A-55-00527-00001
	6mm SN68 (#2) / 4mm RLE70/36 (#4) / 4mm Clear	1.81	0.32	0.21	0.18	0.31	STL-A-55-00528-00001
	6mm SNR50* (#2) / 4mm Clear / 4mm Clear	2.02	0.35	0.17	0.15	0.26	STL-A-55-00534-00001
	6mm SNX51/23* (#2) / 4mm Clear / 4mm Clear	2.01	0.35	0.16	0.13	0.27	STL-A-55-00535-00001
	6mm SNX62/27* (#2) / 4mm Clear / 4mm Clear	2.01	0.35	0.18	0.15	0.33	STL-A-55-00536-00001

D3600 D3603 Swing Door (Enhanced)	6mm SB60 (#2) / 4mm Clear	1.70	0.30	0.27	0.24	0.42	STL-A-55-00338-00001
	6mm SB67* (#2) / 4mm Clear	1.70	0.30	0.20	0.18	0.32	STL-A-55-00341-00001
	6mm SN68 (#2) / 4mm Clear	1.70	0.30	0.26	0.23	0.40	STL-A-55-00435-00001
	6mm SN68 (#2) / 4mm IS20* (#4)	1.54	0.27	0.26	0.22	0.39	STL-A-55-00337-00001
	6mm SNR50* (#2) / 4mm Clear	1.69	0.30	0.18	0.15	0.28	STL-A-55-00342-00001
	6mm SNX51/23* (#2) / 4mm Clear	1.68	0.30	0.16	0.14	0.30	STL-A-55-00343-00001
	6mm SNX62/27* (#2) / 4mm Clear	1.68	0.30	0.19	0.16	0.37	STL-A-55-00344-00001
	6mm SB60 (#2) / 4mm Clear / 4mm Clear	1.47	0.26	0.25	0.22	0.38	STL-A-55-00378-00001
	6mm SB60 (#2) / 4mm SB60 (#4) / 4mm Clear	1.25	0.22	0.22	0.19	0.34	STL-A-55-00379-00001
	6mm SB67* (#2) / 4mm Clear / 4mm Clear	1.47	0.26	0.19	0.16	0.29	STL-A-55-00381-00001
	6mm SN68 (#2) / 4mm Clear / 4mm Clear	1.47	0.26	0.24	0.21	0.36	STL-A-55-00375-00001
	6mm SN68 (#2) / 4mm RLE70/36 (#4) / 4mm Clear	1.25	0.22	0.21	0.18	0.31	STL-A-55-00376-00001
	6mm SNR50* (#2) / 4mm Clear / 4mm Clear	1.47	0.26	0.16	0.14	0.26	STL-A-55-00382-00001
	6mm SNX51/23* (#2) / 4mm Clear / 4mm Clear	1.46	0.26	0.15	0.13	0.27	STL-A-55-00383-00001
	6mm SNX62/27* (#2) / 4mm Clear / 4mm Clear	1.46	0.26	0.17	0.15	0.33	STL-A-55-00384-00001

I.G.U. (Insulated Glass Unit)	**GLASS**	**WARM EDGE SPACER**	**GAS FILL**
	Guardian IS20*, RLE70/36, SN68, SNR50*, SNX51/23*, SNX62/27*, Vitro SB60, SB67*	DG - 15.6mm (5/8") TG - 2 x 15.6mm (5/8")	90% Argon & 10% Air

Based on NFRC CPD - Certification Date: May 2023 Expiration Date: August 2027

Fenestration = Frame, mullions, sash and vision glass. Refer to www.nfrc.org for more information.

*** Available at a cost premium.**

Prepared by Kurt Leano, NFRC Certified Simulator